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THE NEXT ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY WILL BE HELD IN BOSTON, TUESDAY AND WEDNESDAY, JUNE 10 AND 11, 1924.

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VOLUME 189 NOVEMBER 22, 1923 NUMBER 21

Boston University

THE FIFTIETH ANNIVERSARY

EDUCATIONAL CONFERENCE

OF THE

SCHOOL OF MEDICINE

COPLEY-PLAZA HOTEL, SMALL BALLROOM

Dean Alexander S. Begg, M.D., Presiding

PROGRAM

1

THE MUNICIPALITY AND ITS PUBLIC HEALTH PROGRAM

HIS HONOR MAYOR JAMES M. CURLEY

2

A HALF CENTURY OF MEDICINE

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THE MEDICAL GRADUATE AND HIS PUBLIC DUTY

DR. EUGENE R. KELLEY

THE MUNICIPALITY AND ITS PUBLIC HEALTH PROGRAM

"A STEP ON THE ROAD TO FREEDOM"

BY HONORABLE JAMES M. CURLEY,

Mayor of Boston

THE new note of the new age is Conservation, —the conservation of the gifts of God, the conservation of energy, of material, of time and effort—and most important of all, the conservation of humanity, of man. The cry is new to the age, but old to the ages; for human experience had crystallized it in a phrase before Babylon was built and Nineveh was not,—"Waste not, want not." The corollary of conservation is planning and preparation.

The tremendous waste in all human activities has shocked and startled the world for many years; yet it took a World War, with its waste and wreckage, its death and destruction, the earth-wide misery and suffering it precipitated, and the evil aftermath that touched the remotest ends of the world with famine and wretchedness, to bring to the consciousness of the race the vital necessity for ending the folly and futility that had staggered civilization and for the recasting of ancient wisdom to fit modern needs. Conservation, the old philosophy with the new name, is the age's answer to the stark necessity of self-preservation, the acknowledgment of the chastened nations that obedience to the laws of God and respect for the teachings of morality, are the fundamentals of all human constructive accomplishment, for which man can furnish no substitutes.

While war seems to be an inevitable incident of the relations of governments and nations, it is worth realizing that the day of the conqueror and war-lord is done and the day of Democracy is here. While not visible to the eye of this nerve-shattered age, the day may come when frontiers will be ignored and armies cease to march and slay and destroy, for in the dethronement of kings, the institution of democracies, the suppression of caste and privilege, the recognition of the rights and liberties of the plain man, "our eyes have seen the glory of the coming of the Lord;" and we know that the world with all its frailty and futility is marching along the road that leads to the goal of the idealist, where the sword will be turned into a ploughshare, and will be supplemented by right and reason in the arbitrament of human affairs.

The ages of cruelty and oppression, of slaughter and slavery, of nations conquered and lands seized, in the names of religion, progress and civilization, are measurably behind us; and while man is still possessed by greed, avarice, cruelty and his ancient depravities, they are concealed shame-facedly under fine phrases, and no longer deceive. The world has grown wiser through its pains and penalties; it is gradually ridding itself of its consecrated dynasts, drones and dunces, who have ridden on its back in

the black and bloody centuries that are dead; and is questioning the why and the wherefore of its rulers. The sleeper is awakening; the schoolmaster is abroad; the peoples are asking why their sons should be slaughtered and their savings wasted to satisfy the greed and gratify the pride of placemen and politicians; and the common man is standing erect viewing the earth and its fullness and demanding life, liberty and happiness as a freeman's right and not as a master's dole.

So the world has come to Conservation as a remedy for its ills—the conservation of man and material.

The fertility of the field is constant and their harvests perennial; the riches that lie in the bosom of the earth, the teeming millions of the ocean, the wealth of the forests and the energies of the rushing rivers appear to be inexhaustible; and though wasted and neglected, they may be renewed and utilized by care and prevision in a few seasons; but man, the supreme effort of creation, the noblest work of God,—what of him?

The conservation of the race—the preservation of man at his highest, the development of his body, mind and soul, the prevention of his waste and deterioration in war, industry and the rushing activities of civilization—that is the immediate and imperative duty of society, the imperious call to the democracy of America; and that call must be heard and heeded if the progress of the race is to continue upward and onward, and the sufferings and sacrifices of the past are to have meaning and purpose in God's plan.

The child is the pledge of the nation; in its preservation and development lies the solution of our ills and the promise of that day when the Kingdom of Heaven shall be on earth. The Divine Master has said, "Suffer little children to come unto me;" and yet the waste of child life is the crime of our civilization.

Think on it, ye mothers of America!

The poets of the race are its prophets and its seers; they have told us of the young men who see visions and the old men who dream dreams; one of them has said "the child is father to the man;" and the gentlest of them has written out of a heart charged with indignation:

"Ill fares the land, to hastening ills a prey,
Where wealth accumulates and men decay."

It is for us to change a system that makes riches and decay partners in evil; and by the sane and righteous use of wealth make it the agency of a more splendid humanity, a nobler civilization, the instrumentality of a better day; and neither a sword in the service of the conqueror and destroyer, nor a tool in the hands of the cruel and greedy sweater and exploiter of a necessitous humanity.

It is our duty to arrest the hastening ills preying on society; to see that childhood shall reach a sane, vigorous, star-eyed manhood; that by an equitable use and a just distribution of the gifts of God and the rewards of industry, wealth may be made the ally of progress and development, the strong right arm of contentment and happiness, the protector of peace and prosperity and the preventative of social decay. If we will but realize that all our modern evils are fundamentally economic; that the waste, extravagance, and decay all about us are not only immediately economic but everlastingly immoral, we may turn back profitably to the Parable of the Talents and find in Holy Writ the story of the moral and economic basis of our civilization—the right or evil use of wealth and opportunity.

WIPING OUT SLUMS

The slums, the cancers of our cities, the slayers of childhood and the destroyers of the poor, are centers of disease and degeneracy and should be relentlessly wiped out. These breeding places of plague and disease are the product of greed and cruelty; but the epidemics they breed know nothing of boundaries and limitations and go forth to attack palace and home as indifferently as they strike down the poor of the slums.

What chance has a child in such a pestilential slum where filth and decay abound and the poisonous airs prey upon the victims of economic greed and official neglect?

The mill, the shop, the factory, with all their legal restrictions and modern appliances, tax the strength of manhood and womanhood and stunt and degenerate the children of the poor that toil in them; and instead of a human asset being added to the Commonwealth at maturity, a burden is placed on the community and an industrial worker added to the waste of the human scrap-heap.

There should be no compromise with Child Labor. It is a crime against the race, a drag on the progress of the American democracy, and an evil that should not be permitted to exist. The child that is added to the army of industry, as many a one is by legal chicanery and the excuse of poverty, will eventually cost the State more economically when his brief industrial career is closed by shattered health and enfeebled mind, than it would require to keep him in the schools and out of doors until his mind and body are developed and he is mentally and physically prepared to face the tasks of life as an industrial asset.

Let us get rid of a system hateful in the face of heaven and earth. Let no straining of Constitutional principles, or shadowy interpretations of law, thrust the child into industry, for in the industrial immolation of childhood we foster the decrepitude of the State.

The conservation of childhood and motherhood, of manhood and womanhood, is the supreme duty of the State; and if it does not

stand between the greed of industrial exploitation and the preservation of the race the end of American government and all it connotes, will soon emerge.

The work of the world must be done by the trained, educated, vigorous manhood and womanhood of the race; they must be conserved in their youth and protected in their old age; and industry for its own safety must bear the burdens of the conservation of childhood and the leisure and contentment of age. Freed of the human wastage of childhood and age the rewards of industry will be sufficient at all times and the sum total of human happiness will be greater.

Give the child its childhood, give to age the serenity and peace that come from assured protection from the spectre of pauperism, and we will build up a splendid army of thinkers and workers whose high intelligence can and will save us from the folly and wickedness of war's stupidities and the waste of men and the fruits of their industry.

PERMANENCY IN EMPLOYMENT

Let conservation begin at the sources of the race, the home and the child. Much has been done by science and sense to better conditions in the past decade, but much remains to be done and it is our duty to do it. The necessities of industry of every kind and character in the face of keen and ever-increasing competition demand an efficient conservation of every element that enters into its productive and economic life, the elimination of the waste of time, energy, material, production and distribution, that profits may be secured and work and wages be made constant; but under the new industrial dispensation, the crude and ruinous policy of offsetting waste and inefficiency by cessation of work and wages has proven disastrous. Industry—and every productive activity of man from the gathering of raw material to the marketing of finished product is industry—has learned that man is supreme, the vital, the indispensable factor in every effort of the race; and that as he deteriorates and becomes industrially subnormal industry declines, social decay sets in, calamity stalks abroad and civilization and democracy are threatened.

SAVING WAGE

As man is conserved, as his faculties are trained and developed, as his health is guarded and his environment protected, as he is brought closer to the ideal, to the man made in the image of his God, then it will be well with the world; its peace and prosperity will be assured and the contentment and happiness of the community, upon which all else is posited, will be secured.

Man is the supreme effort of Creation and the betterment of the world is in proportion to the betterment of man. This is the message of the age, the answer to all human ills. Not only is the conservation of the race, its increase and multiplication, a response to the divine mandate and obedience to the moral law, but it is the insistent urge of enlightened self-interest and the instinct of self-preservation.

The child is father to the man. Give the child childhood and fostering care; save him for the world's work; teach him and train him for the future; develop his soul and mind and body; and in the days to come the evils of war and waste, of wealth misapplied and work misdirected, of grasping greed and selfish stupidity, of economic inefficiency and industrial blundering, will pass away, and mankind will be closer to the mountain top beyond which lies the Celestial City.

A HALF CENTURY OF MEDICINE

BY JOHN PRESTON SUTHERLAND, M.D., SC.D.,
BOSTON

Dean-Emeritus of Boston University School of Medicine

FIFTY years ago there came into existence here in the City of Boston, a University conceived on broad lines and departing in many ways from the ordinarily accepted lines upon which universities are built. It was primarily and essentially *urban*, being located in the very heart of a great metropolis. Its students came into contact with life's activities in all directions. It had no spacious campus with avenues of stately trees, remote from the bustle of the world. It had no mess-halls or dormitories for the housing and protection of its students. Its students were expected to familiarize themselves with all the phases of life in a busy world and not live in seclusion from the heart throbs of humanity.

But the University had its full quota of departments. It had its College of Liberal Arts, and its three Professional Schools of Theology, Law and Medicine, and we are gathered together today especially to celebrate the Golden Jubilee of its Medical School.

This Medical School, however, is in reality an older institution than other departments of the University, for its origin can be traced back to 1848, seventy-five years ago, when Dr. Samuel Gregory opened in Boylston Place a medical school for women. This later became the New England Female Medical College, and was the first medical school in the world to be devoted to the education of women. This pioneer institution flourished for nearly a quarter of a century, but languished on the death of its founder, and was taken over by Boston University and

opened as its medical school in 1873. The land, building and all assets of the New England Female Medical College became in 1874, by an Act of Legislature, a part of Boston University and formed a strong and visible link connecting the two institutions. A significant change was made in its administration, for it became and has remained co-educational, without sex discrimination in Faculty or student body.

It is noteworthy that during the seventy-five years which it may be claimed the School has lived, it has had but three Deans who have served approximately twenty-five years each, and it is expected that its recently appointed Dean, Dr. Alexander S. Begg, will follow the example set by his predecessors.

The occasion which brings us together and the subject assigned me naturally calls for retrospection. As one interested in medical education, I, therefore, cannot refrain from contrasting the medical education of today with that of one-half century ago.

Then the entire course was covered in two years; now, the medical course itself requires a minimum of four years. Then, no preparatory courses were demanded and students were admitted to medical schools even without examinations; now a minimum of two years preparatory work is the requirement and in these two years the student is expected to cover certain of the fundamental sciences. Then, post-graduate hospital interneship was not required, now an applicant is not permitted, in many states, to take examinations for a license until he has spent at least one year as a hospital interne. Then, two years of academic work were considered sufficient to equip a student for practice; today the term expressed in years is seven. Then, no laboratory work was included in the curriculum except the anatomical; now, the laboratories of the medical schools exceed in number the lecture halls, and laboratory work is required in histology, embryology, physiology, biological chemistry, pharmacology, bacteriology, pathology, hematology and urinary and blood analysis, etc., and the hours spent in the laboratories exceed those spent in the lecture hall. Then, the work was chiefly theoretical, and clinics were offered in a few subjects, but now the entire senior year is devoted to clinical work in actual bedside instruction in the hospital and in the out-patient department. Then, students were permitted as onlookers to witness operations; today they are required to act as assistants, to administer anaesthesia, etc. Then, each medical school was its own standard maker; today standards are fixed by other agents, for instance, the Association of American Medical Colleges, the Federation of State Licensing Boards, the American Medical Association, the Carnegie Foundation for the Advancement of Learning, and other agencies, and during the war the Surgeon General's office kept in close touch with, and made many suggestions concerning, medical education.

In view of this lengthening of the course, increasing the curriculum, modifying the methods of education, and elevating the standards, the question may well be asked, Does the graduate of today know more, and is he better fitted to go into practice than his predecessor of fifty years ago? I unhesitatingly answer yes; and go further and make the claim that he is infinitely better equipped than was his predecessor of one half century ago. His advantages have been multiplied, let us say, ten times, and it is fair to assume that he is ten times better equipped.

We may now ask what *progress* has medicine made during the half century? The answer to this question would require very much more time than is at our disposal at present, but it is permissible to make brief references to the most marked innovations that have come to pass. At the outset it may be claimed that the past fifty years has been the most glorious era in the entire history of medicine. Its achievements, its real accomplishments have eclipsed all the achievements of the preceding twenty-three centuries. In speaking of these accomplishments it is only just to refer to the few pioneers who laid the magnificent foundation upon which modern medicine has been built.

First, we should refer to the 16th century anatomists, Vesalius, Eustachius, Fallopius, and their contemporaries and successors, who laid the foundation, without which the modern medical structure could never have been built.

During the next century, in 1628, Harvey made his famous discovery concerning the circulation of the blood, and I think he did even more than this, for the methods he made use of in his investigations, incubating eggs by nature's own method, as he and his friend George Bathurst did, laid the foundation for embryology, and pointed out the way to research investigation.

In 1683 Von Leeuwenhoek made his astounding announcement concerning micro-organisms. Not being a practising physician he did not know what to do with his discovery, and the world was not by any means ready for the reception of this vital piece of knowledge. He was, in fact, a century and three quarters ahead of his day, for it was not until the arrival of Lister and Pasteur that Leeuwenhoek's amazing discovery was utilized. I often feel that in the discussion of the "germ theory" and what it led up to, sufficient credit is not given to Leeuwenhoek. It seems to me his name should always be connected with the immortal names of Lister and Pasteur, whose work so greatly influenced the progress of medicine and the lives of humanity during the last half century.

In 1798 Jenner announced his conclusions concerning cowpox inoculation. Here again was a pioneer far in advance of his time, for the

world certainly did not give a hearty welcome to his epoch-making and life-saving discovery.

Coming into the last century the discoveries of Schleiden and Schwann in 1837-1838 concerning the cellular structure of all vegetable and animal organisms, formed one of the biggest stones in the lasting foundations of modern medicine.

The demonstration in 1846 of the anæsthetic powers of ether coupled with the investigations concerning chloroform which had been made, not only was a brilliant discovery but helped to make possible the phenomenal surgical work which has been so characteristic of the last half century.

The introduction of the clinical thermometer during the late 60's and early 70's added very substantially to the physician's instruments of precision and added much to the possibilities of diagnosis.

All these things led up to the outstanding feature of the half century which has just passed. No one will grudge surgery the great reputation it has earned during the past few decades. Everyone knows that surgery has been the brilliant achievement of medicine during recent years and that it has prevented more suffering and saved more lives than can be placed to the credit of pharmaco-therapy during all the preceding centuries. Its work has been simply marvellous, but possibly surgery has reached its zenith. It has fearlessly and successfully entered the pelvic cavity, the abdominal cavity, the thoracic cavity, the cranial cavity, and has attacked all parts of the human body, and its plastic work has been simply wonderful. Possibly it is now in the condition of Alexander the Great and has "no more worlds to conquer." Improvement in technique unquestionably is possible but it would seem impossible for surgery to duplicate its remarkable success of the past half century.

It was my privilege as a surgical interne in our hospital to hold one of Lister's carbolic-acid-spray generators, and to direct that spray not only on the field of operation, the surgeon's hands and the instruments he was using, but to cover the surgeon himself and his environment with the spray. These early practices soon gave way to the modern methods which have proven quite as successful and certainly more agreeable to the operator and his assistants. Concerning surgery, it was my privilege also, not many years ago, to hear Sir Arbuthnot Lane, at the close of a serious abdominal operation at Guy's Hospital in London, say to his assembled audience, "It is up to you, gentlemen, to make all this work unnecessary."

Let us now turn our attention to other achievements of this past half century which have in reality decidedly eclipsed even brilliant surgery itself in life-saving and disease-preventing possibilities.

In 1880, just a little more than forty years ago, Eberth discovered the typhoid bacillus. The question of how the bacillus gained entrance into the human body was not clearly answered for several years, but the possibilities of the common house fly in spreading this disease have become today matters of common knowledge. It was in 1907 or 1908 that typhoid "vaccines" began to be used somewhat freely chiefly for the purpose of immunizing people against this dread disease.

A few statistics concerning typhoid fever may not be out of place.

During the Civil War there were 79,462 cases with 29,336 deaths; a mortality of 37%.

During the Franco-Prussian War there were recorded 74,205 cases with 8904 deaths; a mortality of 12%.

During the Boer War 58,000 cases occurred with 8,000 deaths; a mortality of 14%.

During the Spanish-American War there were 20,738 cases and 1580 deaths chiefly among men who had not been off their native soil. This mortality formed about 86% of the entire mortality during that war.

In contrast to this one may refer with the most heartfelt satisfaction to the fact that during 1916 there were 400,000 men encamped and on duty at the Mexican frontier without mortality from typhoid. This was due partly of course to improved sanitation but chiefly to the inoculations against typhoid fever which had been scrupulously carried out.

During the Great War among the millions of men crowded together under most unhygienic circumstances the occurrence of typhoid was a rare thing and its mortality negligible. This again was due to the life-saving influence of immunizing doses of typhoid vaccine, and this again to the credit of medicine. Typhoid as well as typhus did occur in certain detention camps and prisons, but the reasons for these epidemics are not far to seek. In this connection I would refer you to the London *Times'* "History of the War" for further particulars concerning these epidemics of typhoid and typhus. If the past half century of medicine could present no other achievement than this it would certainly have shown itself a most memorable era, but in 1882 Koch discovered the tubercle bacillus and while tuberculosis is yet very far from conquered its control has been made infinitely more possible by that discovery.

In 1883 what is known as the Klebs-Loeffler bacillus was discovered and it was not long before this discovery led up to the development of diphtheria anti-toxin by Behring in 1890. I can well remember with what dread and horror I encountered cases of diphtheria in the early years of my practice, and with what satisfaction I used this anti-toxin during the early 90's. From that time onward, diphtheria gradually lost its horrors and today medicine has reason

to congratulate itself upon the well established fact that the dreaded diphtheria can be now looked upon as a conquered disease, a disease that can be made wholly a thing of the past by the co-operation of the laity and the medical profession. The use of the Schick test and the toxin-anti-toxin treatment makes this a possibility.

In 1884 Koch again announced one of his impressive discoveries;—this time of the cholera bacillus, and this discovery pointed the way to the prevention of the devastating epidemics of cholera which history has known, for by simple sanitary means this disease can be obliterated.

In 1894 the germ of the black plague, known as "bubonic plague," was discovered by Kitasato and Yersin. The discovery of the germ itself, however, was not enough from the prophylactic standpoint, and it was not until 1908 that the announcement was made definitely by the Plague Commission that the infection is conveyed from rat to rat and from rat to man solely by means of fleas. Destruction of the flea-bearing rat naturally follows such a discovery as that of Kitasato's in 1894, and it is with inexpressible satisfaction that reference is made to the fact that during the recent war, when the transporting of troops and supplies from all the ports of the world to the European theatre of war was going on, the occurrence of bubonic plague was prevented by simple sanitary devices. It is claimed that the terrible mortality of 60% or more in this disease, has been reduced by Hafkin's discovery of a vaccine, to 24% or less, but the extermination of the rat with his fleas, and the prevention of epidemics altogether, is infinitely more gratifying than even this reduction of mortality by vaccine.

In 1897 the discovery of the "anopheles" mosquito as a bearer of the malarial plasmodium was made by Ross, and the method of infection was thereby linked up with the so-called germ itself, which was discovered in the blood as long ago as 1880.

While these discoveries have made it possible practically to prevent the occurrence of malaria there are certain agencies connected with the prophylaxis that are worthy of consideration.

I learned on a recent trip to Panama that there has been, during the past year, some increase in the number of cases of malaria in the Canal Zone itself. This was attributed to the fact that through lack of sufficient appropriation the mowing of lawns around the dwellings, barracks, store houses, etc., had been reduced from eighty feet to forty feet around each building. This has made possible a much increased area for the development and harboring of the anopheles mosquito, and therefore increased the possibilities of infection. For the protection of the inhabitants of that region and the saving of life it is certainly desirable that the Government appropriation be increased sufficiently to admit of this simple procedure of mowing the lawns as formerly for a distance of eighty feet around each building.

In 1898, very near the close of the last century and only twenty-five years ago, Loos discovered the *modus operandi* of hookworm infection. The parasite itself had been known for approximately eighty years but the method of infection, the all-important particular, was not recognized until the date given. This most important discovery and its possibilities as recognized by the Rockefeller Foundation, has made possible a saving of hundreds of thousands of lives annually, and the restoration to a fair degree of strength and usefulness of millions. The ease with which infection occurs and the fact that about one-half the population of the world inhabits the hookworm belt, makes the disease one of the most common pestilences which affect mankind. Here, particularly, a little intelligent co-operation on the part of the laity is absolutely necessary to stamp out the disease, but that sanitation and this co-operation can obliterate this disease is one of the easy possibilities.

For the most fascinating description of the work done in controlling this disease I refer you to the September, 1922, number of the *National Geographic Magazine* which contains an article entitled, "Map Changing Medicine."

In 1900 the method of yellow fever infection was definitely recognized through the most unselfish, self-sacrificing and heroic work done by medical officers of the United States Army. That heroism is not confined to the spectacular things of life is made evident by the wonderful work done by Reed, Lazear, and Carroll, and it was due wholly to these experiments that Lazear's life was lost, and he became a true martyr to the cause of science and the saving of human life.

It is true that Finley, in 1881, claimed that the "stegomeia" mosquito conveyed the infection from person to person, and had this been known at an earlier date thousands of lives might have been saved. In this connection an interesting story might be learned on visiting the magnificent Ancon hospital located in this suburb of Panama City. It was here in 1883-1889, during the De Lesseps effort to construct a canal, that yellow fever proved such a deadly foe to humanity. The hospital at that time was unscreened, and cases of yellow fever were admitted, but the Sisters who had charge of the nursing were permitted to establish flower beds in the close vicinity to the hospital. They were fond of flowers and were desirous of cheering the sick people as much as possible. They found, however, that the umbrella ant was an effective destroyer of their plants, and to prevent this umbrella ant from reaching them, they dug shallow ditches around the flower beds which, when filled with water, prevented the ants from crossing, but this simple device also furnished

wonderful facilities for the development of the "stegomeia," and the unprotected wards of the hospital in such close proximity offered opportunity for the mosquitoes to reach the yellow fever cases, and it so happened that the hospital became a yellow fever pest hole, and almost every case became infected during his stay in the hospital.

It was these wonderful discoveries of the cause of typhoid fever, of malaria, and yellow fever and the methods of infection which led up to one of the greatest engineering feats of modern civilization, the construction of the Panama Canal. While all credit of course is due and freely given to the engineers in charge of the work, too much credit cannot be given to those noble medical men and sanitarians through whose efficient work these devastating diseases were practically annihilated. So, during the building of the Canal, the mortality was less than the mortality in most of our northern latitudes. The medical discoveries during the last one-half century have not only been of inestimable value in relieving suffering and saving life, but in making possible extraordinary engineering feats.

In 1909 the American investigators, Anderson and Goldberger, recognized the fact that typhus fever was due to infection by lice. Probably the germ which is responsible for the fever itself has since been discovered by Plotz of New York. The laity as well as the profession is familiar with the splendid work done by Dr. Strong and his corps of physicians and nurses in stamping out the ravages of typhus in Serbia during the war.

In 1917 the cause of trench fever was definitely discovered. In the investigations which led up to this discovery unselfish and heroic work was done, not only by the physicians conducting the experiments, but by soldier invalids who offered themselves generously as subjects for experimentation. I would refer you once more to the London *Times'* History of the War where you will find a most fascinating report of the investigations which led up to this discovery, and also the impressive report of the Royal Commission for the investigation of the medical conduct of the war. This report, dealing as it does so thoroughly with preventive medicine, is one of the most important literary documents medicine has produced during the half century.

With these stupendous achievements in less than half a century one might well rest content, but the story has not been told by half.

In addition, serum and vaccine therapy, immunology and blood chemistry, have come to the front as absolutely essential additions to the physician's armamentarium. X-ray and radium within a quarter of a century have shown not only their pathogenic and diagnostic ability but also their therapeutic uses. In 1897-1898 two young men, Strong and Griffith, in my school laboratory wound a coil for x-ray use, which so far as they could learn was the first coil wound in Boston. Be this as it may, they used their production as a plaything. Some of the pictures they took were phenomenally good, and I am glad to have them in my possession today. At that time the pathogenic power of the x-ray was unknown, and in experimenting with the rays some of us suffered a little. You all remember Dr. Dodd, of Boston, who recently died from the effects of x-ray injuries incurred in experiments with this powerful agent. The x-ray now is an absolute essential in diagnostic work and it is coming into its own therapeutically.

A greater epoch-making influence, however, came to the front in the early 90's with which the name of Dr. Thomas Rotch is connected; for as I recollect it, it was he who popularized in this country the scientific or percentage feeding of infants. Since then laboratory methods, pasteurized milk, and certified milk have become household words, and it is claimed by many authorities that, as a result of "percentage feeding," infant mortality has been cut in half. The saving of approximately 50% of infant lives is almost too big a thing for our conception. Its full meaning, of course, cannot be entered into here.

It was during the Russo-Japanese War that one of the most vitally important medical discoveries of all time was made. It was simplicity itself, so simple in fact that its real meaning has not yet produced its proper effect upon the medical profession. I refer to the discovery of the cause of beri-beri. From three different sources, Japanese, German, and British, the announcement was made that this common disease was due to the eating of polished or white rice. Experimental evidence soon accumulated to confirm these announcements, and today it seems to be one of the established scientific facts, easily proved by experimentation, that the liberal eating of polished rice is in a large percentage of cases a fatal procedure. According to my personal belief, what the steam kettle was to Watt, and the apple to Newton, this discovery should have been to the medical profession, for it unveils a principle of wide application.

Less than fifteen years ago Professor Funk coined the word "vitamins" as applicable to certain elements which are removed from rice by the polishing process. Vitamins, whatever they may be, have existed since the dawn of Creation but it is only recently that man's ingenuity has been able to recognize their existence. Whether we say "demineralization" or "devitaminization" it does not matter; the essential fact is that certain elements which Nature has put into the rice to make it a food for humanity, mankind removes, and as a result brings death upon himself.

In this connection pellagra might be men-

tioned, the cause of which was discovered by our own Government workers in 1915. The main point in connection with the etiology of pellagra is the use of a one-sided diet,—a diet chiefly of carbohydrates, in which the proteins and inorganic salts are deficient. Recent study in scurvy, rickets, obesity, diabetes, dentition troubles, etc., point in the same direction.

It may be that surgery has reached the zenith of its power, and that we know aproximately all that we are going to know pathogenetically and therapeutically concerning germs, but here is a field of investigation that is as broad as humanity: investigations in which are likely to bring to the medical profession as much credit and honor as the brilliant one-half century just past has done.

The prevention of disease and therefore the prevention of suffering and death is certainly a more important and glorious achievement than the reduction of mortality from a given disease, and it is my conviction that during the next half century the progress that is made will be in this direction.

In closing I want to refer to some of the important problems yet to be solved by the profession. Let me call attention to an article by Dr. Walter E. Fernald, in the August 2nd number of the Boston Medical and Surgical Journal, entitled, "The Salvage of the Backward Child." Dr. Fernald makes the statement that there are approximately 50,000 mentally deficient children and adults in our State of Massachusetts, that the addresses of about 18,000 are now on record, and that the "school clinics" are uncovering approximately 4,000 annually. These are simply pathetic and appalling statements, and relentlessly demand the attention of the profession and the State itself.

We are told that the State made a small appropriation last year for the purpose of investigating the cause and prevention of this deficiency. Heretofore the State has spent millions for the care of these cases but the last Legislature was the first to make an appropriation for the study of the cause.

Attention might be called to the report of the Psychopathic Board of the State made last winter, concerning the survey of upwards of 3,300 high school children. The Board concluded that 40% were unfit for further scholastic training. It seems to me these statements are simply overpowering in their significance, and I would urge my medical hearers to study carefully beri-beri and pellagra, especially noting the symptoms connected with the cerebro-spinal axis. If the eating of polished rice and the too liberal use of a carbohydrate diet are capable of producing a distinct weakness of the nervous system with prostration, delirium, dementia, paralysis, and death, is it not possible that many of these cases of mental deficiency are produced by dietetic errors?

The problem of cancer and of tuberculosis and many other conditions have yet to be solved, so while we justly rejoice in the wonderful achievements of the last half century let us not overlook the problems to be solved during the coming half century.

With the solid scientific foundation medicine now rests upon—with the impetus of the past five decades behind it—medicine ought to face the problems of the next fifty years with the greatest courage and the highest anticipation.

STATISTICS AND THE DOCTOR

BY EDWIN BIDWELL WILSON, BOSTON

It was very good of those who were arranging the program for this afternoon to pay me the compliment of considering that I might have something worth while to say to this distinguished audience. My professional contact with the field of medicine, and of the public health, is of very short duration but I have already found very interesting the attempt to apply the methods and philosophies of statistics which I had acquired through a considerable study of economics and the physical sciences to the problems that are of importance in connection with either medicine or the public health. Although these problems are not often considered to be closely related to economics or to physics, and although I should be very loath to recommend any elaborate study of statistics as a requirement in a course of medicine, it has become increasingly evident in the past 50 years that for rapid progress in medical research a very considerable knowledge of physics and of physical chemistry is necessary, and it is becoming increasingly clear that for any critical study of the basic problems in the public health a reasonable acquaintance with statistics is indispensable and some knowledge of economics is desirable. I will venture the guess that the future will show that the statistical method is useful in the furtherance not alone of the public health but of the digestion of the observations of clinical medicine.

To a certain extent we are all necessarily statisticians, whether doctors or not. Our memory and the various integrations performed by our central nervous system and the very varied world in which we live make it certain that much, if not most, of our practical thinking and acting is essentially statistical in nature. The major premises in our syllogisms when we deal with reality are in the nature of statistically established inferences from our observations. It is true that in those general propositions like the law of gravitation, or the simple laws of mechanics, and of electricity, and of chemistry, the statistical element is very largely

eliminated because the law is without exception. What we mean, however, by saying that a law is without exception is not that nature in her infinite variety actually follows absolutely certain rules, but that for the purpose of making progress in the quantitative sciences we have found it essential to idealize, and by idealizing to simplify the actual process of nature so that the idealized residual with which we deal is subject to a definite law which has no exception. The very process, however, of coming to such a law requires on the part of the investigator the power to abstract from all sorts of disturbing influences, and in this sense his law is necessarily a statistical result.

In those sciences, of which medicine is one, in which the natural complications are so great that no adequate formulation can be made, at any rate in the present state of our knowledge, by the process of disregarding minor disturbances—in those fields of science, in short, where the distinction between major and minor disturbances cannot be drawn because there are so many factors of about the same intensity, it is necessary to resort frankly to the statistical method. The method itself is something that anybody can learn, but the application of any statistical method to material which in itself is not reliable is probably even more dangerous than to apply a well balanced judgment to the material without statistical analysis.

It is right here that so far as students of the public health are concerned the relation of the doctor to statistics is most important. The mortality statistics with which we deal are gathered from returns by the medical profession of causes of death, and the morbidity statistics are likewise based upon returns from the medical profession in cases of reportable diseases. Insofar as the returns are incomplete, or incorrect, the conclusions of lengthy calculations by competent statisticians must necessarily also be inaccurate. It is important and interesting to have good mortality statistics to trace the causes of death among the population from place to place, and from time to time. It is, I believe, equally important and to me more interesting to have good statistical material with respect to morbidity for the same purposes. Yet it is very difficult to obtain reliable morbidity statistics in large amounts. There are instances which are not altogether infrequent in which the number of deaths credited during a certain period to a particular reportable disease considerably exceed the number of cases reported. He would indeed be a confident statistician who would draw conclusions with respect to the peculiar incidence of disease in different places and at different times when he had returns of fewer cases of the disease than of deaths from it.

The economic aspects of sickness and death are likely to attract a great deal of attention from now on in this country. Hitherto we have been developing a territory of vast extent, of great natural resources, and waste has not seriously concerned us. We are likely to be much more concerned with economical methods of utilization of our natural resources in the future than in the past. Hitherto we have had available a very large and rapidly increasing supply of ordinary labor because of the way population has flooded into this country through immigration at periods when business activity was such as to demand a large additional amount of labor. We have, therefore, been negligent with respect to the economics of the uses of labor as we have been with respect to the economics of the uses of materials. With a restricted immigration, and I believe that the country is committed for many years to that policy, we shall have to be more economical of labor. Many employers already perceive that due consideration for the welfare of their employees pays good returns in dollars and cents entirely apart from equally good returns in self-respect. If this state of mind has been reached by many in the past when labor was unrestricted with respect to immigration it is all the more likely that such conclusions will become rapidly more widespread when the great European reservoir of labor is not available to us in any large way.

Included in the question of the economical use of labor is the matter of the employment of persons partly incapacitated either by defects, by illness, or by advancing years, and the decision in respect to the social or economic advisability of using a particular individual in some particular capacity is a decision which properly rests with the physician. Many companies today employ resident physicians and it seems inevitable that in the future the companies will employ more resident physicians. At present in very many cases it seems as though the chief function of the company doctor were to aid in the avoidance of industrial accident or in its reparation when the accident has occurred. It may very well be doubted whether accidents are responsible for as much economic inefficiency and individual suffering as illness and it may well be questioned whether a company might not better give a greater share of the attention of its medical department to the matter of illness. Unfortunately statistics of a reliable sort are apparently not available for an adequate treatment of the simple economics of the losses to industry through illness as compared with the losses through accident. The companies themselves could well afford to begin already to collect statistics which should be of value to statistical investigators and after proper digestion become available to the company physicians. The industrial hygienist of the future will probably have to justify to the administration of the industry in which he works the expenditure of very considerable sums of money. He will have to show not merely that he is doing good through

these expenditures but that he is doing as nearly as possible all the good that can be done with the money available. A reasonable knowledge of statistical methods and a very full body of statistical data will be necessary for him in the proper discharge of his duties alike to the company and to the employee.

We have made in this country some experiments in group insurance. To a certain extent the activities of the industrial hygienist may be said to be experiments in group medicine. Whether we shall extend those experiments as widely as they seem to have been recently extended in England I would not venture to surmise, but that some extension is probable would seem to be clearly implied in the brief references that I have just made to industrial conditions. Moreover, the activities of our public health officials who are in a way concerned with group medicine, though in a very different way from that above suggested, are certain to expand. The problem of keeping the people well from a municipal, state, or federal point of view may be aided by a study of mortality statistics, but can only be conducted on a really sound basis when we shall have been for a considerable time in possession of reliable morbidity statistics, and it is the medical profession alone that can furnish really reliable data.

It is very unpleasant perhaps to suggest to a hard working and over-burdened profession that for the public good they will be called upon to experience an ever-increasing amount of annoyance in making accurate official returns with respect to death and disease, but there will be compensations to them for these pains. I am confident that the statistical method may be of real service to the everyday practitioner, not because he will practice that method himself but because when the data are available the results of a statistical analysis of those data will enable him to draw his diagnostic conclusions with an increased confidence and to apply remedial measures with increased success. The question of statistics and the doctor resolves itself really into a whole-hearted and generous coöperation between statisticians, physicians, and public health officials, and it is unlikely that such a cooperation will be of less benefit to any one group of the coöperators than to any other group. At any rate, so far as my own activities go I wish to emphasize the fact that I work with the ideal of being of service to the medical profession and I presume that Dr. Kelley, who follows me in addressing you, is just as anxious as I am to return good measure for the many favors that we must ask if we are to do our own work to the best advantage.

THE MEDICAL GRADUATE AND HIS PUBLIC DUTIES

BY EUGENE R. KELLEY, M.D., BOSTON

Massachusetts Commissioner of Public Health

Our theme presents fascinating possibilities in the great variety of treatments which quickly present themselves. Perhaps the most significant point which this topic brings to mind is that it is only very recently that the conception that the average medical graduate had any such obligations as public duties has gained much headway. On the contrary, it has been long recognized that the supreme need of having the doctor readily on call at all times for the benefit of individuals in times of bodily distress over-rules all other demands upon his time. This principle has even been recognized by statute as in the long-standing provision that members of the medical profession shall be exempt from jury duty.

The setting of the physician's career is such as to accentuate an individualistic attitude towards life. To him his patients are all distinctly individual problems and his contacts with his clientele are on a peculiarly close and intimate basis in contrast to other professions. He does not have occasion to exhort his flock *"en masse"* as does the clergyman from the pulpit; he does not pit his skill and knowledge against the equipment of other members of his profession before a portion of the general public as do members of the legal profession daily in the courts. Hence any natural tendency on the part of the physician to avoid active participation in public affairs is tremendously accentuated by his training and the circumstances of his daily routine.

But there is, or perhaps more accurately there has been in the past, added to this a very strong widespread tradition in the profession that active participation in public affairs was not befitting the highest type of medical career. If a young physician showed any inclination to become actively concerned in matters of civic interest, whether political, social, religious or economic, two things practically always happened. His best friends among the older members of the profession would quietly take him aside and assure him that he was "spoiling his career." Particulars were seldom given; he was simply impressed with the fact that these things were not to be done if one wished to achieve entrance into the inner circle of medicine in his community or district, and inasmuch as the kindly favor and interest of the older leaders are essential to reaching success in any profession he usually never debated the point but took it for granted that persistence in participating in public affairs, even though there was a

deep personal bent in that direction, would "ruin one's career" and stopped short.

The other reaction that always comes to the surface is more pronounced among the young physician's contemporaries but also exists among his elder colleagues, and this is the tendency, whenever a young physician seems to show an aptitude for and a definite interest in the affairs of local government, or of his political party, or of his chamber of commerce, or even of his church, to shrug the shoulder and intimate inside the profession that young Doctor So-and-So is a very clever advertiser, and is using all these activities solely as a means to a selfish end,—the increase of his practice.

Sometimes this is a factor, perhaps a big factor, but it has frequently been my observation that physicians who have become genuinely interested in any activities concerning either the entire community or any large social, political, religious or business group in the community, more frequently than otherwise sacrifice possibilities of financial returns as a result of such activities rather than profit financially thereby.

However and whatever the motives that have determined their course, it is all too true that those members of the profession from whom the community as a whole might profit most if they actively participated in public affairs have in the past rather pointedly abstained from such participation. They find a ready alibi in the pressure of their work and the all-absorbing demands of their patients on their time and energy. I am convinced that this attitude is wrong; that in the past it has operated as a species of false modesty that has not only deprived the community of much valuable service from members of the medical profession but that it is also in no small degree responsible for the failure on the part of the public to accord to the profession as a whole the full measure of prestige to which its great accomplishments should entitle it. In other words, I am convinced that we have failed to educate the public adequately as to what medicine has to offer to the common welfare and that a large part of the causes lying back of this failure has been the cloister-like attitude of the profession itself concerning communal affairs of all types and kinds.

Moreover, this seems to be a peculiar attitude of Anglo-Saxon medicine. Among the Latin, Teutonic and Slavic peoples no such tradition has ever been developed as to the impropriety of the physician actively engaging in public life. Virchow, in the midst of his most prolific professional years, found the time to be a member, and seems to have taken just as seriously the duties of membership in the City Council of Berlin, as his work of teaching pathology. Clemenceau, the old father of victory, never seems to have been considered an abnormal product of French Medicine because he entered actively upon a political career. The cabinet lists of all Latin countries, as well as minor civic positions, show a frequency of medical incumbents probably beyond their relative numerical rating among professions.

Whether or not this abstention from public life be as relatively important a factor as I am inclined to believe, it is certain that the course of organized medicine in the past fifty years presents one of the strangest paradoxes conceivable.

Three outstanding achievements have distinguished the past half century of medicine in this country and the world over. All of them reflect great credit upon the profession. All of them have been of almost incalculable benefit to mankind at large. They are the tremendous advance in general educational standards within the profession; the wonderful development of the spirit of research and its amazing resultant discoveries of the first grade of importance in the prevention, cure and alleviation of disease and suffering; and the development of public health measures or preventive medicine, the blessings of which have been in large measure, though not wholly, the results of the unselfish devotion of the medical profession. Certainly never in all the centuries that have preceded has medicine begun to show as much real permanent achievement as within our own era.

And now comes the paradox. During this very period there has been a disheartening loss of faith in the teachings of scientific medicine, a marked lessening of the willingness of the public to accept medical authority, and a bewildering increase in the number and in followings of all sorts of semi-scientific, pseudo-scientific and even definitely and defiantly anti-scientific medical cults. There has also been a curious acceptance of the benefits of the advances in personal and community hygiene and sanitation by the public without marked disposition to give corresponding credit to medicine for the part it has played in earnestly seeking out these truths in the first place and then later shaping them into general community policies and practices for the good of their fellows.

It has become a not uncommon experience to hear some apparently well posted and public-spirited citizen laud to the skies some principle or application of public hygiene and in the same breath scurrilously villify the intelligence and motives of the medical profession without appreciating in the slightest the inconsistency of his stand or realizing that these hygienic principles he so enthusiastically acclaims have been for the most part discovered, expounded and put into general practice by the self-sacrificing efforts of the criticised profession.

Sometimes one is almost forced to the pessimistic conclusion that the more medicine really knows the less it is believed in by the general

public. At any rate times have changed and if medicine in the past was ever justified in holding itself aloof from the "forum and the market place" that time has gone, probably forever. If medicine is to be true to itself and to the glorious traditions of the "art," the medical graduate of today must give serious consideration to his public duties and opportunities, and the peculiar or specific moral obligations towards public affairs resting upon him.

THE NON-SPECIFIC PUBLIC DUTIES OF THE MEDICAL GRADUATE

By this term is meant such public duties and common welfare service as may reasonably be expected from the medical graduate of today,—not as the peculiar or technical prerogatives of his profession but the duties and obligations of a public and semi-public character mandatory upon all persons who have benefited from a course of cultural or professional training not within the reach of the great mass of their fellows.

For convenience I have grouped these "non-technical" public duties of the medical graduate under three heads:

1. Those as cultural leaders in community life.
2. Those as moral leaders in community life.
3. Those pertaining to general civic affairs.

It is regrettable that medicine as a whole has not stamped the impress of its cultural essentials more definitely upon our common life. There is much that is fundamental in medical training that is sadly needed in our community life.

The attitude of true scientific inquiry in itself is a great asset which physicians and other scientists should share more fully with their fellows. The opportunity of the physician to do this is incomparably greater than that of the physicist for instance, not merely because there are so many more physicians than there are physicists but because from the character of the physician's life he makes contacts with scores while the physicist is reaching individuals.

To the public, science in general still smacks too much of mystery, is still regarded as something that has no immediate message for the average man; in many quarters, alas! it is still regarded with a distinct suspicion, a lingering dread lest too great exposure to its influence may breed irreverence and a loss of spiritual values. The scientific man knows that the precise reverse of all these things is true. As Arthur Brisbane has effectively pointed out in his editorials for years, what this country needs is not protection from. but a tremendously greater and more widespread inoculation with the scientific spirit in all the ramifications of our community life.

In addition, the modern physician shares with all others who have reached levels of cultural development beyond the average—and it matters not a particle whether this has been by way of an academic degree or by a process of self-education—the moral obligation of using these gifts in a spirit of service to help to leaven and raise the general mass appreciation of his community in such fields as the drama, literature, music, art, architecture, personal and civic adornment.

This crudely expresses the thought that the very first public duty of the medical graduate of today is as a cultural leader in his community. Because of the higher standards for pre-medical education now made nearly universal, the medical graduate of today is equipped to do this to a degree which was but seldom found in the medical graduates of two generations ago.

The medical graduate's duties as a moral leader in his community are more difficult of exact expression. But all thoughtful people must recognize the value and significance of the physician's influence in this sphere. He, more than the representatives of most other professional or ethical groups, is by training and by virtue of his practical experience able to understand the impetuous cry of the rising generation for a happier definition of man's relation to his fellow man, and to maintain a sympathetic and helpful attitude even towards its mistakes of judgment in its struggle for a new conception of the social and moral order.

Passing to an allied field—that of actual religious expression—within which perhaps the medical mind finds it still more difficult to express itself clearly, there also seems to be a pressing public duty resting upon the medical graduate. Just what the religious connections or religious manifestations of the typical medical graduate of today are or may develop into, I will not be so rash as to hazard. But this one thing I know, and I feel it is the all-important point in this matter. The typical medical graduate of today, and his teachers and leaders within the profession, have none of the skeptical or atheistic attitude towards matters of religion that was prevalent among the profession a generation ago. That there are among their ranks many who might properly be classed as agnostics, using that term in its original and broader sense, is undoubtedly true, but the materialism formerly noticeable among the profession has now almost entirely disappeared. It is no longer considered necessary to manifest one's acceptance of evolution by throwing bricks at the entire structure of orthodox religion.

A scientific world that has learned, aye! has proved, that within the atom, a unit itself so small that it is difficult to conceive it, there exist

complicated systems of electrons revolving about a central nucleus at distances from each other relatively comparable to the distances of the planets of the solar system and that in the last analysis all known elements are built up of the same fundamental atomic stuff, no longer has the cocksure attitude of the old scientific world poised firmly on its scientific dogma of a universe of matter composed of so many score elements. A generation of medical men who know by modern methods and modern instruments of scientific precision that the ultimate germ cell far from being a simple matter of nucleus, nucleolus and protoplasm, exhibits an intricacy of structure fairly comparable with that of our stellar universe cannot accept blind, brute chance as an all-sufficing explanation for all vital phenomena. As one great leader of modern medicine somewhere puts it, "The evolution of science has reached a point where it is more rational to presuppose and admit the existence of an Infinite Intelligence back of all these phenomena than it is to deny its existence."

Hence one of the pressing public duties of the medical graduate today is that of making clear to his fellows that whatever may have been the views of the past, modern science does not propose to banish religion, but that the teachings of science properly understood present unlimited opportunities for the development of a religion whose conceptions are majestic enough to match the marvels of modern science.

Turning to the third group of general public duties of the modern medical man, that of active participation in public affairs in general, it is perhaps not illogical to consider these under three heads.

The first is the duty of leadership in matters of social welfare. Despite the relative disrepute into which certain types of social work, so called, have fallen with the medical profession in recent years, the fundamental interest of the physician in all matters of true social welfare is so thoroughly recognized, can be so clearly traced historically and is so much of a matter of course today, as the lists of boards of trustees of all types of philanthropic organizations bear witness, that it is not necessary to go into any detailed exposition of the public duty of the medical graduate in this field.

Next in this connection may be placed the duty of the medical graduate to identify himself with the economic structure of the community. Of late years there is a distinctly better attitude in the profession in this respect. It is no longer considered a most unusual thing for the physician to interest himself in the economic and financial welfare of the community. No longer does the physician feel like a lost sheep among the goats in a chamber of commerce or other similar community organization. However, that there is still much room here for useful public service by the medical graduate is so obvious a conclusion that we may well rest our case by merely stating it.

Last in this group of public duties which the medical graduate must seriously consider is that of active participation in political interests, yea, even the dreadful possibility of actually holding public elective office! Physicians in the past have shirked their civic responsibility in this respect more than in any other and it is not fanciful in my opinion to hold that both medicine and public life have suffered thereby. The doctor has a distinct contribution to make to public life and there is a definite moral obligation resting upon the profession to see that more men representative of the best thought, best ideals and best judgment of the profession appear in the future in the membership lists of Congress, State Legislatures and City Councils. Our modern complex civilization has for one of its cornerstones the achievements of hygiene and sanitation,—in fact, it is not too far fetched to assert boldly that without these achievements it is hard to see how modern urbanized life could have been evolved or how it could continue to exist.

And the physician is best equipped of any professional group or groups to interpret these principles into sound legislation and sound hygienic administrative practice. All of this leads naturally to the final group of public duties resting upon the modern medical man,—the obligation of promoting public health, preventive medicine, and rational personal hygiene for all groups of his fellow citizens.

THE DUTIES OF THE MEDICAL GRADUATE IN PROMOTION OF PUBLIC HEALTH

In this field the public obligations resting upon the medical graduate are technical and peculiar unto the profession rather than in the category of duties shared in common by all professional and cultured individuals. They have been so long recognized both within and without the ranks of medicine that no detailed exposition of them is either necessary or desirable. If they are treated with even greater brevity than those public duties shared by other professions and persons, it is not to be inferred that any relative minimizing of their great social and civic importance is intended, but rather that like such elemental propositions as that a straight line is the shortest distance between two given points, these public functions of the medical profession are everywhere recognized by our fellow countrymen.

Even at the risk of restating platitudes in this field, however, I wish to comment upon a few aspects of this group of public duties of the physician by way of emphasis.

In the first place, in spite of the rapidly increasing number of old and new professions

which modern public health work finds necessary to enlist in its service, as the engineer, the chemist, the nurse, the nutritionist, the bacteriologist and many others, our widening experience in public health demonstrates clearly that for general grasp upon problems of public health administration as a whole a sound medical training is almost indispensable and that this training gives the medical profession an insight into the possibilities of public health development possessed by no other group.

Another significant feature of present-day public health work is the speed with which it develops. It is literally growing by leaps and bounds and the public is perhaps beginning to hold somewhat exaggerated ideas as to its potentialities, for we have yet to prove that even the widest applications of public health principles will make all black sheep white, all potential criminals perfect citizens or transform all embryonic dipsomaniacs into earnest deacons. But at all events the public interest on this subject is acute, and the public faith in its possibilities as yet unshaken. This spells an insistent, irresistible public demand for an ever-increasing fraction of our present day medical graduates to dedicate their lives and professional careers to the public service.

Nor is this all. The onsweeping rush of the medical tide into the channel of preventive as contrasted with clinical medicine is already rudely sweeping from their moorings many of our centuries-old, time-hallowed conceptions of the scope of private medical practice. This problem of how fairly and justly to determine the proper "balance of interrelationship between the practice of clinical medicine and the practice of public preventive medicine is perhaps the most serious, the most insistent of all the public duties now facing the graduates of our schools of medicine."

CONCLUSION

The final summing up of the whole matter may be said to be that the public duties of the medical man are not far apart from those of all his fellow citizens except insofar as the specialized knowledge of his profession imposes obligations of service correspondingly unique.

Long ago by the Sea of Galilee, the question was asked, "What is truth?" To the answer of that question the foremost, the noblest of mankind have been devoting their lives ever since. As the centuries unfold we think we can see humanity's search becoming more adequately compensated. One thing is clear: From whatever angle such search for truth is begun, as light unfolds it leads man back more clearly to spiritual fellowship with the prophets and the sages, and it must ever be a matter of pride to medicine and its allied professions that light upon the old riddle of the universe, the significance of human existence, shines just as truly from the life and work of Pasteur, Lister, Nightingale or Gorgas as it does from that of St. Francis d'Assisi, Luther, Wilberforce or Lincoln.

Original Articles

COMMENTS ON SOME RECENT PUBLICATIONS ON HYPERTENSION*

BY FREDERICK M. ALLEN, M.D.

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Our preliminary communication[1] concerning the benefits of sodium chloride restriction was confirmed in our larger experience recently published.[2] This series comprised over 200 cases, observed for periods of from several months to three years or over. The 180 cases selected for publication were all those whose systolic blood pressure had been consistently above 175 mm. In this paper, answers were made to the objections of critics, with the exception of O'Hare, whose complete work had not yet appeared. Some further wrong impressions may now be corrected by an early reply to the attack of O'Hare and Walker.[3]

Their work is the most important in opposition to salt restriction, because the objective findings are obviously careful and accurate. The authors recognized the length of time that is often required for adequate dechloridization, and they found the program feasible. Their arguments based on assumptions of parallelism between blood pressure and the plasma chloride level, or the salt retention with edema in non-hypertensive cases, have already been answered.[2] The idea that all transitory nervous influences must be explained through fluctuations in the chloride metabolism likewise represents an absurdity of which no advocate of salt restriction has ever been guilty.

O'Hare and Walker's patients were kept continuously in bed. This may complicate the experimental conditions, introducing two therapeutic factors instead of one. Also, though nervous influences can never be entirely eliminated,

*This article was submitted to the *Journal of the American Medical Association*, which refused publication on the ground that the majority of readers of the *Journal* had no knowledge of the paper of O'Hare and Walker in the *Archives of Internal Medicine*. This consideration, however, did not prevent the *Journal* from publishing an editorial (Sept. 29, 1923, p. 1116) against our position and in favor of O'Hare and Walker. The surprising ignorance displayed in this editorial can scarcely escape notice. The writer of it was apparently unaware of the existence of our complete publication,[2] because (a) he omitted all reference to it, thus giving interested readers no opportunity of comparing our results with those of our opponents; and (b) he made only the stereotyped criticisms which had already been answered in our paper. Furthermore, (c) he had seemingly read only the introduction and the conclusion of O'Hare and Walker, and in this superficial glance had failed to notice that their work did not support the opinions expressed.

our impression is that the exaggerated weight laid upon these transitory influences by several writers is due to the exaggerated effects of these influences under the artificial conditions of bed rest and that our patients who habitually walk, talk, etc., without any restraints are less subject to extreme pressure changes from a mere conversation or like trivial cause. Our chief criticisms of the general position of O'Hare and Walker are the following three:

1. These authors start from the premise that Allen[1] advocated merely a "greater" restriction of salt, "limiting the intake of salt to 0.5 gm. a day instead of the usual 2 gm." We consider these and similar statements incorrect. If a restriction from 10 gm. to 2 gm. has been "tried frequently," where are the records? Instead of an "almost universal rstriction of salt in treating hypertension," we are forced to believe that the treatment of cases of hypertension (without edema, with or without nephritis) by salt restriction was never heard of by nineteen out of twenty American physicians until the past few years, and that a similar majority of them today neither accept nor practice it. We cited references[2] showing that this teaching is not current in the literature, and we shall be interested in any support that O'Hare and Walker may be able to bring for their opposed statement. The question has never been merely between "extremely low salt intake" and an "older less rigid restriction." It is a choice between restricting salt and not restricting salt for hypertension, and this plain broad issue cannot be confused or avoided.

2. Christian[4] has given prominence to the frequency with which nephritis develops in the later course of "essential" hypertension cases, without known extraneous cause, as if it might be an integral feature in the later development of the disorder; and he evidently accepts Volhard's demonstration of lesions of the small renal arteries as an anatomic basis of hypertension, which makes the above clinical relations readily comprehensible. It therefore seems rather curious that O'Hare and Walker, in their therapeutic approach to this subject, find such a sharp distinction necessary between cases with and without nephritis. In our own study, we have been dubious of any infallible definition or diagnosis of nephritis, but have recognized that the great majority of our cases have had more or less renal impairment demonstrable by fine tests. We have regarded hypertension as an entity, whether pure or complicated by other renal disorders, and this view has been strengthened by the similar response of both kinds of cases to diet treatment. Christian and O'Hare have previously[5] recommended moderate salt restriction for nephritis and hypertension without edema, and have evidently had a large experience with such treatment. O'Hare and Walker on the first page of their paper suggest that the frequent association with nephritis may explain the benefits claimed for the salt reduction treatment of hypertension, as though this were a reason for excluding nephritic cases from the study; and the last sentence of their conclusions leaves uncertainty whether their skepticism concerning salt applies to hypertension in general or only to the cases (perhaps the minority) which are entirely free from nephritis. This ambiguity should have been cleared up by a frank publication of their complete results, not of a few artificially selected cases. If chloride restriction does not reduce the blood pressure in cases of hypertension with nephritis, what is the reason for limiting the publication to a few non-nephritic cases? If chloride restriction does affect the blood pressure favorably when nephritis is present, why is the fact not acknowledged plainly in this paper?

3. The method of selecting the few cases actually published means a limitation to mild or early cases, or those of longer standing in which the skilled tests of O'Hare and Walker could detect no impairment of renal function. In other words, the cases chosen were those in which the highest "tolerance" for salt should be expected. Next, on the false quantitative premise mentioned in paragraph (1) above, the authors demand that this type of cases shall reveal a difference between the narrow limits of 0.5 and 4.0 grams of salt intake. And finally, they demand that this effect shall amount to a difference of 25 mm. in the average systolic pressure, or else they will not admit the result to be real. This peculiar plan may be like stating a mathematical problem in mutually contradictory terms. There is scarcely an escape from the impression of an unfair device calculated to yield the most negative possible results. It is readily comprehensible that patients of this type may perhaps "tolerate" 4 gm. of salt, so that differences between this and a lower intake may be absent or accidental; and entirely negative findings under the plan of O'Hare and Walker could therefore be discounted, as lending no support whatever to their general conclusion against the influence of salt in hypertension.

As we have, however, the record of thorough and accurate studies in these few cases, they should be accorded their full scientific value without quibble or evasion. Their Table 2, which shows their complete results, can be analyzed as follows:

(*a*). In three cases (Nos. 1, 2, 3) the systolic pressure averaged 9 to 14 mm. higher with 0.5 gm. than with 4.0 gm. of salt intake. These average pressures, however, were low, ranging from 126 to 168 mm. In four more cases (Nos. 5, 6, 8, 9) the fall of pressure with the lower chloride intake was trivial (1 to 6 mm.). Here

the average pressures were only slightly higher than in the preceding, namely 140 to 175 mm. In other words, all these seven cases were too mild to have been included in our own published series, and their chloride tolerance was such that the restriction to 4 gm. of salt intake, together with bed rest, gave apparently as good results as the restriction to 0.5 gm., at least for the relatively short periods of observation.

(*b*) In one case (No. 7) the pressure averaged 247 mm. with 4 gm. of salt and 246 mm. with 0.5 gm. This is probably a therapeutic failure due to the opposite reason, namely, the severe and intractable character of the case. Two more cases (Nos. 10 and 11) showed average reductions of only 7 and 11 mm. respectively, probably for the same reason.

(*c*) The remaining eight cases (Nos. 4, 12 to 18) showed significant therapeutic benefit from the lower salt intake. This was least in Case 12, in which the average pressure was reduced from 201 to 188 mm., while in the other seven the reductions ranged from 18 to 40 mm.

In brief, three cases of this series, in which the average pressures were nearly normal, chanced to show higher figures with the lower than with the higher salt intake. All the other fifteen, with more distinct hypertension, showed lower pressures with the lower than with the higher salt ration. The sum total of the elevations of pressure with the lower salt intake is 42 mm., while the total of the reductions is 218 mm. The other columns for maximum and minimum systolic pressures and for diastolic pressures are confirmatory. As we have stated,[1, 2] the reduction of diastolic pressure is usually less than of the systolic, but the total elevations of diastolic pressure for cases in this table under the lower chloride intake amount to 33 mm., while the total reductions amount to 109 mm.

Turning now to special features of individual cases discussed by O'Hare and Walker, it is found that they seek to discredit the 25 mm. reduction of average systolic pressure with the 0.5 gm. salt régime in Case 4, because this reduction was obtained only in a 64-day period and not in a previous 15-day period. But we have emphasized this very necessity of prolonged thorough treatment in order to obtain benefits in some cases, and a reduction to this extent as an average throughout such a long observation period is an undeniable therapeutic success. In Case 18, the average systolic pressure was reduced 40 mm. through 35 days of 0.5 gm. salt intake, and then fell 4 mm. further when 10 gm. of salt was given daily for six days. But while this quantity of salt may be adequate, the six-day period is too short for the decisive test of an overload in a case chosen especially as having a normal renal function.

Five graphic charts portray further the results of variations in the chloride ration. None deal with the benefits just mentioned, but all are devoted to observations which supposedly invalidate these benefits. Analysis of these specially chosen records shows the following:

Concerning Chart 6, the authors remark: "As one looks at the chart the first impression is that with the increased salt intake, the pressure, especially the systolic, rose." Certainly, and this is also the last and the correct impression. All that O'Hare and Walker can allege against it is that on two days there were discrepancies between the chloride output and the blood pressure. As stated above, the idea of a day by day and hour by hour parallelism between the blood pressure and the chlorides of urine or plasma is an absurdity which nobody has ever maintained. The general rise of blood pressure in this chart with increased salt intake is perfectly plain, and agrees fully with the benefit of salt restriction observed in this same patient.

Charts 7 and 10 deal with two of the milder and less decisive cases (Nos. 8 and 9). The abrupt rise of blood pressure when patient No. 8 was discharged from hospital illustrates the practical uselessness of the treatment by bed rest, and also the unwisdom of introducing this complicating factor into the tests. Believers in salt restriction may see in these charts some indications of an influence of salt, which might have been brought out more plainly by some changes in the experimental conditions. These charts at least carry nothing decisive against the influence of salt.

Chart 8 deals with another mild and indecisive case. The fluctuations may have been due entirely to nervous causes, but all that can be said is that the pressures in general were higher with high than with low salt intake, and this record, like the preceding, furnishes no evidence against salt restriction. There is repetition of the same fallacy that discrepancies between chlorides and pressures on occasional days can discredit the general trend of the curve. Elevations of pressure from single large doses of salt were reported by us[1] only in severe cases with marked salt retention. The fact that these patients were classifiable as nephritics in no wise invalidates the observations upon the pressure. It has never been imagined that patients with good kidney function would show such close and immediate parallelism.

Chart 9 shows occasional fluctuations from nervous or accidental influences (which nobody has ever denied), but it shows more particularly and plainly the steady general fall of blood pressure under chloride restriction.

In summary, the work of O'Hare and Walker seems to have been planned and interpreted from a prejudiced viewpoint. Their conclusion expresses the adverse opinion of chloride restriction to which they committed themselves at an early stage of their research, but it is diamet-

rically opposite to their actual experimental results. The observed changes in blood pressure with the narrow differences of the chloride ration were more distinct and positive than could have been anticipated by the most enthusiastic advocate of salt restriction in the class of cases chosen, and this work therefore gives important support to the strict as opposed to lax limitation of chlorides, especially when applied to more severe cases. As previously mentioned,[2] the tests of Mosenthal and Short were interpreted in a similar adverse spirit, and also were not carried out with the necessary thoroughness and exactness; but study of their records indicates some benefit from the lax measures employed. Granting that our own work may have been performed and interpreted with equally strong prejudices in the opposite direction, the fact remains that this work has been repeated by a few persons with confirmatory results but by nobody as yet with opposing results. Hypertension is a great public health problem, affecting several million persons in the United States alone. It is therefore important for both practical and scientific reasons that unbiased observers should make and publish comparisons between liberal chloride intake, on the one hand, and thorough chloride restriction on the other hand, in order to decide the question whether sodium chloride bears any relation to this condition.

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THE INADEQUACY OF THE MEASURED DIET AS AN INDEX OF THE FOOD METABOLIZED*

BY HENRY B. RICHARDSON, M.D., NEW YORK

[From the Russell Sage Institute of Pathology in affiliation with the Second Medical Division of Bellevue Hospital and from the Department of Medicine of Cornell University Medical College.]

THE energy of the animal organism is supplied by oxidation. In the dietary treatment of disease the essential fact to be known is the total energy expended by the patient, and the contribution of protein, fat and carbohydrate to that total. This information can be obtained only from an estimation of the quantity of oxygen consumed by the organism and the quantity of carbon-dioxide given off. When a doctor orders a diet he often assumes that it will be oxidized as given, without alteration either in the total amount, or in the proportions of the individual food-elements. Indeed, this assumption is almost second nature. The fallacies involved may be illustrated by the following analogy. Suppose that you have a gasoline engine of constant efficiency and a meter to measure the quantity of gasoline which flows in. By means of the meter you can predict with fair accuracy the energy consumed by the engine. Suppose, however, that after passing the meter the gasoline flows into a storage tank, to be withdrawn in greater or lesser quantity according to the needs of the engine. The quantity of gasoline consumed during any given period might be greater or less than indicated by the meter. The latter would measure with accuracy the performance of the engine over long periods of time only. Now the situation is the same with the patient. The meter corresponds to the weighed diet. The energy consumed by the engine, corresponds to the total number of calories of heat given off by the patient. The tank represents the capacity of the body for storage. As is widely known, either protein, fat or carbohydrate may be stored in or withdrawn from the tissues. Were this not the case, it would be impossible to gain weight on a luxus diet, or maintain life on a fast. Without this faculty the organism would go out like a candle between one meal and the next.

It has been thought permissible to draw conclusions from the diet when the body-weight remains constant. Our experience is that the body-weight is not to be trusted. F. G. Benedict has often called attention to this fact. We have seen a small boy gain five kilograms of fluid in two days for no apparent reason other than diabetes and severe inanition. Gain of fluid could easily mask loss of tissue. Without change in fluid-content a gain in one food element could offset a loss in another. Even with the patient in equilibrium both as to nitrogen and as to body-weight a gain of carbohydrate could offset a loss of fat. Constancy of weight is not to be accepted uncritically as evidence that the food oxidized is the same in quantity and proportions as the food ingested.

If, then, the weighed diet is not dependable, some other means of measuring oxidation becomes necessary. To make a simple analogy, suppose it desirable to determine the quantity of charcoal burned in air. If the obvious method of weighing the charcoal were not available, the quantity burned could be calculated from the amount of oxygen consumed in the oxidation. To measure the oxidation of foodstuffs two quantities must be known, in addition to the oxygen consumption, namely, the carbon-dioxide eliminated from the lungs and the nitro-

*Read before the Harvard Medical Society, Nov. 7, 1922.

gen excreted in the urine. The ratio between the volume of carbon-dioxide eliminated and the volume of oxygen absorbed is known as the respiratory quotient. When carbohydrate is oxidized the quotient has a value of unity, when fat is oxidized it is 0.71; when both are oxidized, it is between the two, at a level which indicates the proportion of each. As a matter of fact, the quotient is dependent on the oxidation not of carbohydrate and fat alone, but of protein as well. The share of the latter may be deduced from the nitrogen of the urine. From the total carbon-dioxide and the total oxygen are deducted the quantities ascribed to protein, leaving the non-protein respiratory quotient from which may be computed the quantities of carbohydrate and fat oxidized. It is thus possible to determine, without reference to the diet, the actual quantities of carbohydrate, protein and fat oxidized.

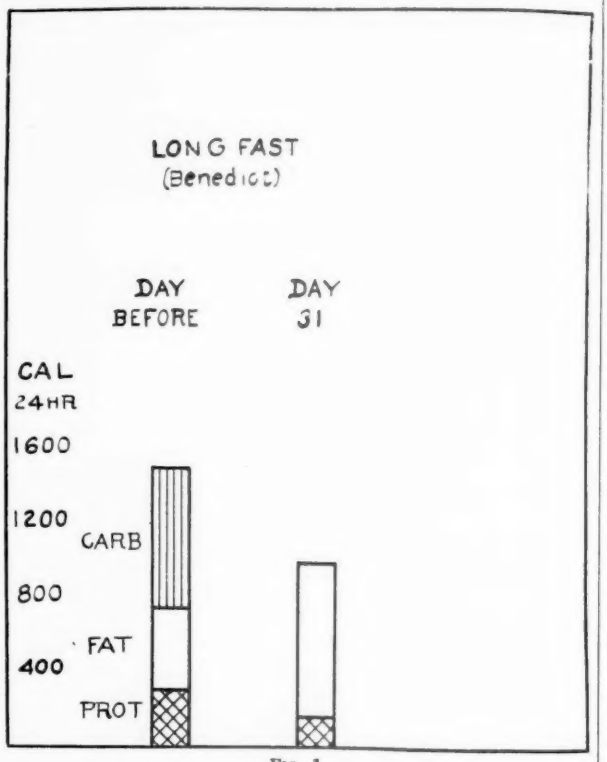

FIG. 1.

The first and most obvious discrepancy between the food given and that oxidized occurs when the individual fasts. Receiving no food, he, nevertheless, continues to oxidize food. Life is maintained first at the expense of the food reservoirs of the body, later at the expense of the tissues. F. G. Benedict[1] made a most careful study of a man who fasted thirty-one days.

The first chart represents the food oxidized on the day before the fast and on the thirty-first day of the fast. The data are expressed in calories per 24 hours. The lowest portion of the columns, marked by cross-hatching, represents protein. The middle portion, blank, represents fat. The upper portion, shaded with vertical lines, represents carbohydrate. Both observations were made in the bed calorimeter during the night. The subject oxidized food before the fast at the rate of 1500 calories per 24 hours. Protein, fat, and carbohydrate each had a fair share in the total caloric output. At the end of 31 days without food the subject still oxidized a considerable number of calories, in fact, nearly two-thirds as much as before the fast. The proportions were not the same, however. Carbohydrate took no part. The oxidation of protein had decreased. Fat had increased both relatively and absolutely, until it furnished the greater part of the calories. It may thus be seen that the oxidation at the end of 31 days still continued, diminished, in fact, a bare third. The carbohydrate was exhausted, but enough fat remained to satisfy the bulk of the energy requirements. In addition, the protein of the fixed tissues was being used.

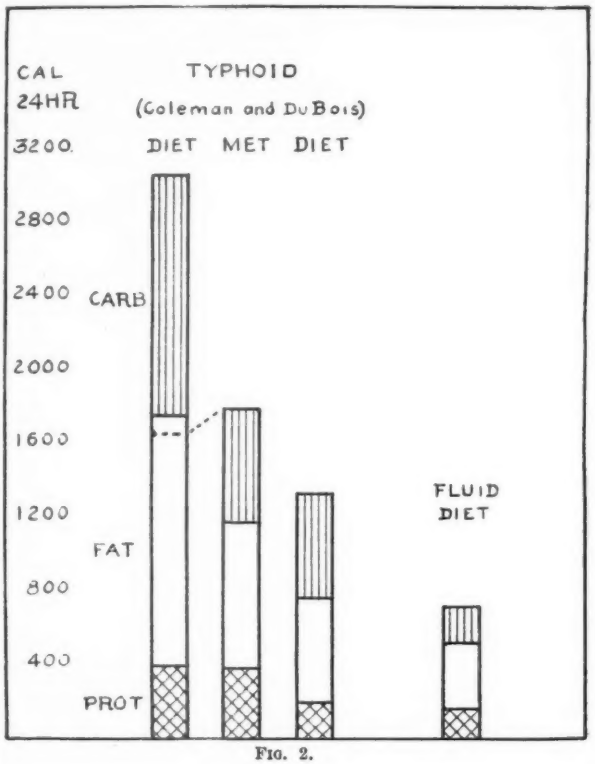

FIG. 2.

The second chart shows the effect of both high and low calory diets on the metabolism in typhoid fever, or rather, the striking absence of any marked effect. It is taken from the work of Coleman and DuBois.[2]

The three columns show the data of three consecutive days. The first and third columns represent calories of diet; the middle column, the food-materials oxidized before breakfast on November 18th. The dotted line to the left shows the total calories metabolized before breakfast on the day preceding. Both are calculated on a basis of calories per 24 hours. The

total calories oxidized, again measured on the 25th of November, were slightly higher. In general, however, the total calories for the 24 hours as measured before breakfast, maintains a level line, little influenced by the oscillations in the diet. The first and third columns indicate in calories the diet given during the twenty-four hours before and after the date of the metabolic observation. The first diet contained 3,076 calories; a little over one-eighth of it in the form of protein, the rest equally divided between fat and carbohydrate. Slightly over one-half of the total calories was oxidized, the saving falling upon the fat and carbohydrate. The diet given on November 19th, the day after the metabolism observation, fell far short of supplying the needs of the patient at rest. The fourth column represents the caloric value of a diet such as is frequently prescribed, though fortunately not in the treatment of typhoid fever. It is a fluid diet consisting of a quart of milk, half a pint of broth and the whites of two eggs. As indicated on the chart, such a diet would furnish a typhoid patient with only half of the food which he requires. It is similar to a diet much used in surgical wards in conditions in which the metabolism may be exactly the same as in typhoid fever. For acute surgical conditions such a diet may be thoroughly justified, but in chronic wasting disease, for instance, chronic sepsis, it should be scrutinized.

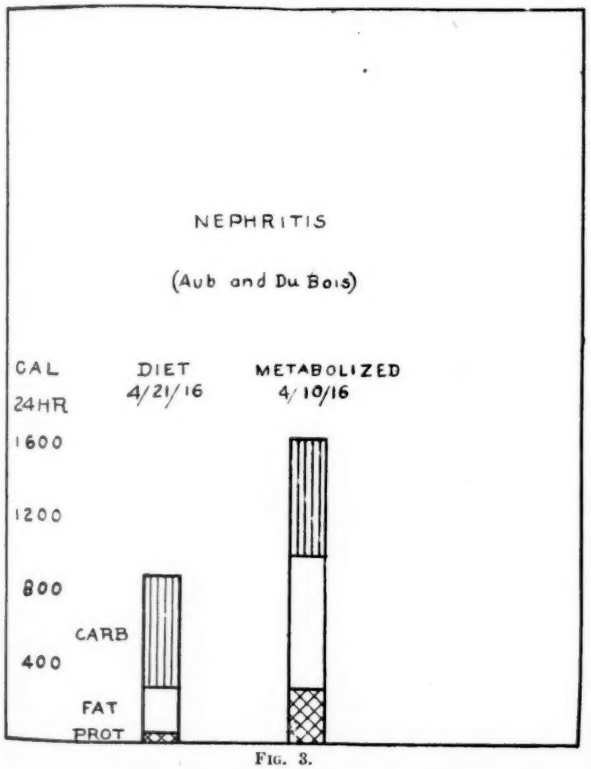

Fig. 3.

The third chart illustrates chronic nephritis. It is taken from the work of Aub and DuBois.[3] The columns are arranged as before. The second column shows the total calories of food oxidized by the patient. The first column shows a typical low-protein diet.

The comparison, though illustrative rather than quantitative, shows how far short of supplying the energy requirements of the patient such a diet may fall. A considerable proportion of the deficiency fell upon protein which was supplied from the tissues. This marked loss of protein from the body is a point of great practical importance. It might easily shorten the life of the patient and for what benefit? What good is a low-protein diet if it is associated with a high-protein oxidization? How can it compensate for a loss in body-protein which in this example was equivalent to that contained in half a pound of beef? No man oxidizes less than 20 grams of protein a day and no man can retain his body-protein intact on less. Even to approximate 20 grams it is essential to give ample calories in fat and carbohydrate.

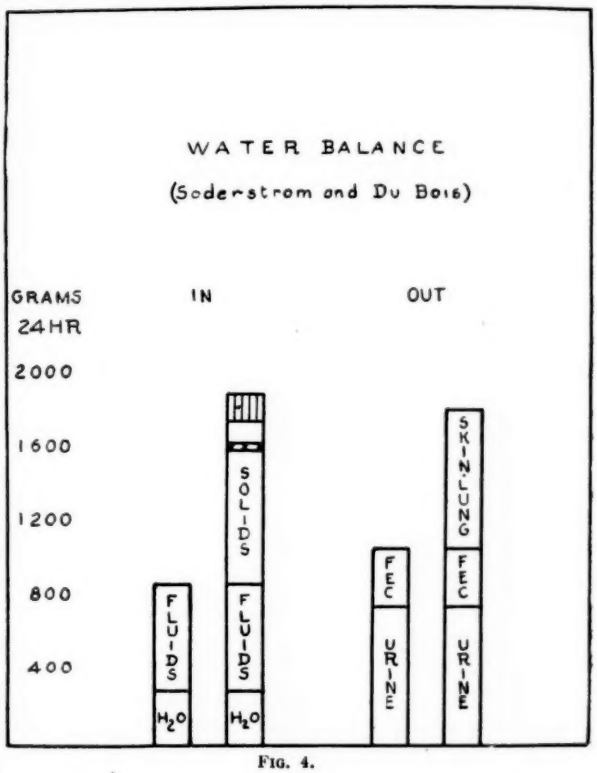

Fig. 4.

Something of a digression, yet a point of importance in practical medicine, is the metabolism of water. This is illustrated by an example taken from the work of Soderstrom and DuBois.[4] The figures are illustrative, yet modelled on actual data. In this slide is shown the water balance. The figures are in grams. The first two columns represent intake of water, the last two, output. Water taken in as such amounted to 300 grams, or about a glass and a half. Fluids in the form of broth, coffee, and the like, comprised 580 grams, a total of 880 grams, not a deluge of fluid, but still not a niggardly al-

lowance. This total is shown in the first column of the pair. It is the customary measure of fluid intake. Now the interesting thing is that the fluid of the diet furnished less than half of the water taken in. In the second column the total fluid intake is shown, including the water from other sources, of which the most considerable is the water-content of the so-called solid foods. The remainder is the water formed in the oxidation of food. This water would still be formed were the food given bone-dry. It amounts in this case to 300 grams, or as it happened the same amount as the allowance of drinking water. Comparison of these two columns shows that the solids of the diet may contribute even more water than all the liquids combined.

that this case is extreme it may be added that there was a positive water balance with an actual gain in the weight of the patient.

In estimating the water balance for clinical purposes it is customary to measure the intake of fluids and the output of urine. This is a valuable procedure, but may mislead. At the Second Medical Division of the Bellevue Hospital it has been customary to estimate the intake of water as the sum of the fluid plus the total weight of the food given; and the output as the sum of the fluid of the excreta plus an allowance of 700 cc. a day for evaporation from the skin and lungs.

In the study of diabetes a method for direct quantitative comparison between the diet and the food oxidized was used. As the continuance

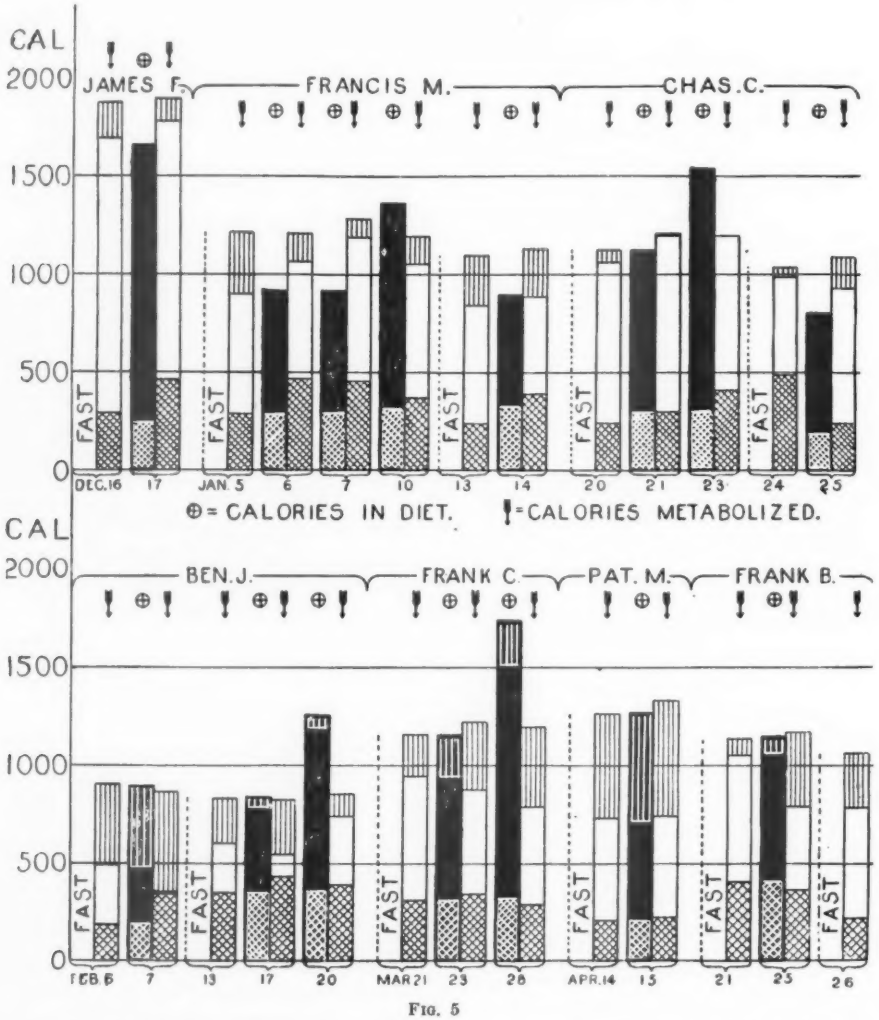

FIG. 5

The second pair of columns show the output of fluid. The third column shows the volume of the urine, which is the customary measure of the fluid output, and also the fluid content of the faeces. The two combined are scarcely more than half of the total as charted in the fourth column by adding the fluid lost by evaporation from the skin and lungs. Lest it be thought

of observations even in the calorimeter beyond two or three hours tends to make patients restless, a method was required by which this brief period could be made a fair sample of the entire twenty-four hours. This was done simply by giving the diet in small portions every two hours, the last portion shortly before the observation. It was thought that the fluctuations

both in the absorption and the metabolism of food would thereby be minimized.

This chart presents in graphic form most of the data obtained by Mason, DuBois and Richardson at the Russell Sage Institute of Pathology during the past year. All of the results are expressed in calories per 24 hours. The columns are bracketed in pairs. The first column of the pair represents the food received. Where none was received the fact is indicated by a dotted line and the word "fast." The second column of the pair represents the food metabolized, as determined by the respiration calorimeter. The food given is indicated by a circle, the food metabolized, by an arrow. In each column the lowest section, cross-hatched, indicates protein, the middle, blank, indicates fat, and the upper, shaded with vertical lines, indicates carbohydrate. The upper row deals with patients who received 1.5 grams of protein per kilogram of body-weight and the same quantity of fat as was oxidized during the previous fast. In some cases still more fat was given but never carbohydrate. The second row deals with patients who received in the diet the same amount of protein, fat and carbohydrate as was oxidized during the previous fast, to be referred to as the replacement diet. In some cases, still more fat was given, thereby approximating the Newburgh diet.

It may be well again to emphasize the fact that oxidization continues even when the patient receives no food. Paired with each column marked "fast" is one marked with an arrow showing the food oxidized. This amounts to 1000 calories a day, more rather than less.

The first point of interest is the lack of relationship between the calories of the diet as given and those oxidized. Whether no calories are given, or whether the full needs of the patient are satisfied, the total number of calories of food utilized remains much the same. Francis M., on January 10th, received a diet high in fat yet metabolized less food than he did while fasting. Charles C. received a similar diet with only a slight increase of food metabolized. The same is apparent with Ben J., on February 20th, and Frank C., on March 28th. The average increase of metabolism as a result of the diet was only 2.6%.

The negative nitrogen balance of diabetes is well known. It means, of course, that the diabetic oxidizes more protein than he receives, in other words, that he lives at the expense of his body. This relation is well shown by this graph. Comparing the lowest portions of the columns, the protein ingested is seen in nearly every case to be less than the protein oxidized. There is but one exception among the patients who received a protein-fat diet, namely, the last one. This exception may be due to the increase in the quantity of carbohydrate oxidized. In the other patients it occurred only twice, once when an excess of fat was given and again associated as before with an increase in the quantity of carbohydrate oxidized. In general, there is no doubt that these seven patients were in negative nitrogen (or protein) balance.

The upper portion of the columns represents carbohydrate. In the upper row the patients were on carbohydrate-free diet. Evidence based upon the respiratory quotient* indicated that they, nevertheless oxidized carbohydrate. For 6 days Francis M. continued to oxidize carbohydrate (33 gms., on January 10, the 6th day), although he received none. At the end of 5 and 6 days Charles C. also oxidized carbohydrate (39 gms. on January 25, the 6th day), although he received none. Frank C., at the end of two days' fast oxidized 54 gms. of carbohydrate. Frank B., at the end of 48 hours of fast, oxidized 21 gms. It is evident that whether fasting completely, or merely foregoing carbohydrate, these patients continued to draw upon their own tissues for considerable quantities.

When carbohydrate is given in the diet in the exact quantity which was oxidized during the previous fast, it might be expected that this withdrawal would cease. Such is not the case. Comparison of the vertically shaded columns in the lower row demonstrates that more carbohydrate was oxidized than eaten, in other words, that there was a negative carbohydrate balance in every instance. The average was 24 gms. This occurred whether the quantities given were large or small; e. g., 132 gms. to Patrick M., April 15th, or 22 gms. to Frank B., on April 25th. The first of these was a mild diabetic, the second moderately severe.

There is nothing very surprising about this withdrawal of carbohydrate from the body. The point is that its importance has not been realized. If, to the carbohydrate which is given the tissues may contribute an unknown quantity, unexpected results may follow. The quantity added is, without respiratory observations, unknown and is not without an element of danger, since it might suddenly fail. Another interesting question is, what is the source of the endogenous carbohydrate? Certainly not the original store of carbohydrate present in health, which is estimated by Joslin[5] to average 400 gms. Since the original store is hardly sufficient to last the month out, at the rate of 24 gms. a day, there must be at times storage of carbohydrate, in order that at other times there may be withdrawal. Where this storage can occur is a puzzle, because the diabetic is considered to be very poor in glycogen. Perhaps this

*The use of the respiratory quotient as a measure of oxidation has been criticised by Benedict, by Krogh, and by Joslin. Nevertheless, it remains the only method known by which oxidation can be measured directly. To prove or disprove the criticism an independent direct measure of oxidation must be devised. Indirect evidence drawn from our data tends to substantiate the accuracy of the respiratory quotient as a measure of oxidation within the animal organism.

depletion has been exaggerated. An interesting discussion of this point is to be found in the second edition of Joslin.[5]

Coming now to the fat balance, there is evident, a relation diametrically different from that observed with either of the other two foodstuffs. There is evidence of a very marked storage of fat. For example, Francis M., on January 10th, oxidized 73 out of 114 grams; Charles C., on January 23rd, oxidized 85 out of 133 grams; Benjamin J., on February 20th, oxidized 37 out of 91 grams; Frank C., on March 28th, oxidized 53 out of 130 grams. The tissues of these undernourished diabetics seem to soak up fat like a sponge. Ben J., who was emaciated to the last degree, on February 7th, stored the entire amount given and oxidized protein and carbohydrate instead.

In general, then, diabetic patients, receiving their basal caloric requirements, plus in several instances considerable quantities of fat, oxidized more protein, more carbohydrate, but very much less fat than was given them. The limit of the body for the storage of fat was not reached. In fact, the largest quantities of fat given (Chas. C., January 23d, and Frank C., March 28th) failed to raise the metabolism of fat above the fasting level. The patient adds to the diet protein and carbohydrate derived from his own tissues and stores a considerable part of the fat.

The amount of food which can be given to a diabetic patient has two distinct limitations, one his ability to oxidize carbohydrate, the other his ability to oxidize the acetone bodies. Oxidation of acetone bodies is dependent on oxidation of glucose. It has been aptly said that the fats burn in the fire of the carbohydrates. In the following, it will be easier to refer to the acetone bodies as ketones and to the abnormal production of acetone bodies as ketosis. Shaffer[6] has published perhaps the most searching analysis of this subject. The principle is that when the ketones formed in the course of the normal metabolism come in contact with sufficient glucose which is in the process of oxidation, they become oxidized to carbon-dioxide and water. When they fail to come into contact with a sufficient quantity of oxidizing glucose they escape oxidization and appear in the urine. The ratio of substances which promote ketosis to substances which prevent it, that is, of ketogenic acid to glucose, determines the presence of absence of ketosis. This ratio is expressed by Shaffer in gram-molecules, as is perhaps most logical. It is more convenient, however, to express it in grams, as Woodyatt[7] has done. It is necessary, then, to choose some one substance as a unit in which to express the various ketones. For this purpose, fatty-acid has been selected, much as nitrogen has been used as a unit to express the quantity of various nitrogenous substances. Ketones are derived primarily from fat, also from protein; glucose primarily from carbohydrate, also from protein, and probably from the glycerol of the fat. The quantity of ketone available, expressed as higher fatty-acid, is obtained by multiplying the grams of fat by 0.9 and the grams of protein by 0.46. The quantity of glucose available is obtained by adding to the grams of carbohydrate 0.58 times the grams of protein plus 0.1 times the grams of fat. The formula of Woodyatt then reads:—

$$\frac{\text{Fatty-acid}}{\text{Glucose}} = \frac{0.46\times\text{protein}+0.9\times\text{fat}}{\text{carbohydrate}+0.58\times\text{protein}+0.1\times\text{fat}}$$

This formula was applied to the data shown in the previous chart. The glucose excreted in the urine was deducted from the carbohydrate contained in the diet, as this correction is easily made and fairly obvious.

The quantities of food oxidized, of course, require no correction.

TABLE 1.

Name.	Date.	FA/G Diet.	FA/G Metabolized
James F.	Dec. 17	3.3	1.7
Frank M.	Jan. 6	1.9	1.0
	Jan. 7	1.9	1.3
	Jan. 10	2.5	1.2
Chas. C.	Jan. 21	2.9	2.3
	Jan. 23	3.7	1.9
	Jan. 25	1.7	1.2
Ben J.	Feb. 7	0.4	0.2
	Feb. 17	1.3	0.4
	Feb. 20	2.3	0.9
	Mar. 2	0.8	0.8
	Mar. 22	2.6	1.3
	Mar. 31	4.1	0.9
Patr. M.	Apr. 15	0.4	0.4
Frank B.	Apr. 25	1.3	0.6
Frank C.	Feb. 23	0.9	0.7
	Feb. 28	1.4	0.6

In this table the left-hand column shows the fatty-acid glucose ratio as calculated from the diet, the right-hand column, the ratio as calculated from the food oxidized. The ratio calculated from the diet has in every instance a greater value than that calculated from the food oxidized. In nearly half of the instances the dietary ratio is twice as large as it should be, in one instance it is four times as large. It is evident that no conclusions can be drawn from these diets as to the relative quantities of ketones and glucose entering into combustion. The error is quite obvious, but fortunately in this particular series it is to the advantage of the patient.

It has been a puzzle why the high-fat diets of Newburgh and Marsh failed to induce ketosis. The fatty-acid glucose ratio calculated from these diets amounted to twice the value which in the experience of Shaffer[6], as of Woodyatt[7] and of ourselves, is sufficient to cause the

appearance of ketones in the urine. Did not these patients contribute enough of their own protein and carbohydrate and store enough fat to reduce the actual ratio to below the critical value at which ketosis has been observed to occur? If this is what takes place, as seems likely, although we have not tried the exact diets used by Newburgh and Marsh[8], a positive danger is to be apprehended whenever the patient reaches his limit for the storage of fat, or whenever, for reasons unknown, the above relations undergo change.

Instances of the divergence between the food given and the food oxidized have been pointed out in various conditions. In diabetes it was found that the patients, receiving their basal caloric requirements, plus in several instances considerable quantities of fat, oxidized more protein, more carbohydrate, but very much less fat than was given them. As a result, the fatty-acid glucose ratio as calculated from the diet was much too high, in nearly half of the instances 100% too high. The absence of ketosis with the Newburgh and Marsh type of diet is tentatively explained on this basis.

CONCLUSION

Since in the metabolism of fat and carbohydrate the end-products are excreted by way of the lungs, it is evident that they can be directly measured only by means of the respiratory exchange. The indirect measurement by means of the weighed diet and the estimation of the glucose in the urine is liable to error, owing to the ability of the patient to store food within the body, or to withdraw it from storage. Examples of the divergence between the food ingested and the food oxidized have been given in cases of fasting, typhoid, nephritis, and diabetes. The error to which an uncritical use of the weighed diets may lead has been pointed out. It is very far from the speaker's intention to decry their use,—on the contrary, they should be used whenever possible, bearing in mind the fact that in no case do they represent with accuracy the actual quantities of food oxidized by the patient. Without a weighed diet the physician may be totally at sea; with it, he needs to apply the mental procedure which he uses in every diagnosis, that is, the effort to visualize the processes which are going on within the tissues of the patient.

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Medical Progress

PROGRESS IN PSYCHIATRY

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It is impossible to give an abstract of all the recent trends in psychiatry, so immense has become the literature on the subject. In looking over the material it was decided to limit this issue of the "Progress" to interpretative psychiatry rather than descriptive, even at the expense of omitting some valuable contributions. This approach to an understanding of the psychoses, which would naturally include the character traits on which mental diseases frequently arise, has been so fruitful that it will be of practical advantage to briefly indicate some of the recent work along these lines.

THE MENTAL STATE OF TUBERCULOUS PATIENTS

In a paper entitled "Fundamental Personality Trends in Tuberculous Women" (*Psychoanalytic Review*, Vol. 10, No. 4, Oct., 1923) Dr. Anita Mary Mühl discusses in detail a subject which has been of great practical interest throughout the history of medicine. Many physicians have noted that tuberculosis is associated in a large number of cases with a definite mental change, and in this paper the variants are carefully studied.

Much has been written on the psychology of the tuberculous and the mental reactions in tuberculosis, with the result that many conflicting and diversified opinions have been formulated. Therefore, it was decided to undertake a piece of scientifically planned and carefully systematized work, the object of which was to determine if there were any common personality factors, and if so, if these were in any way related to the physical features observed in women suffering with pulmonary tuberculosis. The patients studied were thirty in number and represented varied conditions in life; five were in a psychopathic institution, while the other twenty-five had all made good adjustments in the world and were considered by the people in their environment as normal.

In order to make the studies as uniform as possible, in each case, a personality outline was devised, based in part upon the work of Singer and Hoch and Amsden. The following conclusions were finally formulated:

"1. That in tuberculous women there are certain fundamental personality trends which are common to all, no matter what the apparent type of reaction may be.

"2. That they have a two-fold mixed personality which shows strongly marked introverted qualities suggestive of a praecox-like pattern on the one hand and extroverted tendencies with a manic-depressive-like swing of greater or less intensity on the other.

"3. That the mixed personality is responsible for an immense misuse of energy-imprisoning and burying on one side, recklessly expending on the other, thus leaving a very small or no surplus for emergencies, either physical or mental.

"4. That the patients may present the most varied picture to the casual observer—gay, frank, suspicious, hypomaniac, depressed or shut-in—according to which group of trends is in the ascendency, introvert or extrovert.

"5. That if the patient does develop a psychosis or psychoneurosis she may present apparently quite varied pictures at different times, for the reasons mentioned above.

"6. That the most characteristic trends cannot always be disclosed by questioning, but that it requires analysis to get at them.

"7. That the common features are inertia, fatigability, oscillating mood, perseveration, irritability, converted sex trends in the form of masochism and sadism, suggestibility, hypersensitiveness, regressive and suicidal trends, depression and abnormal respiratory behavior.

"8. That other very frequent characteristics are ambition, evidence of dissociative trends, memory impairment and day dreaming.

"9. That wherever there is a combination of suggestibility, with both masochism and sadism well marked, there is also found evidence of dissociative trends with strong bisexual features.

"10. That the regressive trends are very deeply rooted and are influenced and modified by the patients' suggestibility, feeling of inferiority and sensitiveness.

"11. That the so-called optimism of the tuberculous patient is chiefly a myth or at least only a compensatory feature, because depressions and suicidal trends in the unconscious were found in all of these patients.

"12. That psychotherapy has a distinct place, in addition to routine treatment, in the treatment of the tuberculous patient; and

"13. That not until we are prepared to cope with all three phases of the disease, physical, mental and bio-chemical, will we be able to really understand and adequately care for our patients."

PRECIPITATING FACTORS IN MENTAL DISEASES

The immediate or precipitating cause or situation in certain mental diseases is of great importance in the practice of medicine. This is particularly true of the so-called benign (manic-depressive) psychoses and the more malignant (schizophrenic) types of mental disorder. Therefore this paper by Dr. Edward A. Strecker, entitled "A Preliminary Study of the Precipitating Situation in Two Hundred Cases of Mental Disease" (*American Journal of Psychiatry,* Vol. 1, No. 4, April, 1922) is of great practical interest.

The writer considers a condition or situation as precipitating when it seemed to have a probable or even vaguely possible influence on the production of a psychosis. The addition and summation of a number of irritative and recurring difficulties probably reaches or may even exceed in importance the effect of a single dramatic incident. The study embraces a comparison between one hundred manic-depressive psychoses and one hundred cases of dementia praecox from the standpoint of the significance of the precipitating situations and a further comparison as to whether the organic or the psychogenic aspects were more emphatic. An attempt was also made to determine how often and how clearly the pre-psychotic emotional feelings or tones were carried into the actual attack of mental disease. The following conclusions were drawn from this study:

"1. The number of cases is too small to permit positive conclusions and a margin of error must be taken into account.

"2. A significant or important precipitating situation occurred in 52, or more than 25 per cent. of the patients. Influenza, overwork, and exhaustion, the climacteric, and complicated childbirth were the most frequent somatic factors; the most common psychic problems were cruelty, poverty, illness and death of relatives, and unhappy love affairs.

"3. Significant and important exciting factors were more frequent by 12 per cent. in manic-depressive psychoses; there was little difference between the two forms of mental disease in the doubtful and insignificant groups, but the absence of favoring circumstances was six times more frequent in schizophrenia.

"4. The proportion of somatic and psychic features was practically the same for manic-depressive and dementia praecox; the somatic predominating in the significant and important situations, the psychic in the doubtful and insignificant ones.

"5. An extension of the pre-psychotic emotional tone into the psychosis was noted in manic-depressive in 62.5 per cent. of the significant-important situations, but only 21.6 per cent. of the doubtful and in none of the insignificant. The same held true for 30 per cent. of the schizophrenics having important exciting factors, but only in an extremely small per cent. of the doubtful and insignificant groups.

"6. There was a tendency for adequate pre-

cipitating situations to be of longer duration than inadequate ones. This was especially true in manic-depressive insanity.

"7. In manic-depressive psychosis when the initial attack had serious exciting factors later attacks were apt to show the same type of apparent causation. When only questionable or trivial reasons existed for the repeated episodes the original onset was also characterized by doubtful or inadequate prepsychotic situations. An overwhelming majority, 78.6 per cent. of the recurrences, appeared in the doubtful, insignificant and absent groups.

"8. The proportion of normal heredity was considerably higher when we were considering serious precipitating circumstances both in manic depressive and dementia praecox. The difference was respectively 18 per cent. and 14 per cent.

"9. An abnormal personality occurred with greater frequency in those patients whose mental illness came on without adequate exciting factors. The percentage difference was 13 per cent. for manic-depressive and 34 per cent. for schizophrenia.

"10. Much valuable information may be gained by a consistent and thorough analysis of the pre-psychotic history."

TOBACCO AND THE INDIVIDUAL

In a paper with the above title, Dr. A. A. Brill (*International Journal of Psychoanalysis*, Vol. 3, Part 4, 1922) presents some interesting material of what may be termed the psychology of tobacco. This is a subject of great importance for the medical profession, particularly in the light of attempts at anti-tobacco legislation in several states. As a result of careful study and experience on the subject, Dr. Brill draws the following conclusions:

"One can say that smoking, like chewing, is a form of autoerotism which is indulged by most modern men and some women. Masculine aggression which manifests itself in all activities of man is also evidenced in the tobacco habit. Aggressive men are invariably strong smokers. As the receptor of nourishment the mouth zone seems to require almost constant stimulation, especially when the individual is laboring under difficulties. It is plausible that primitive man was first impelled to gratify this impulse because of hunger, and that the accidental development of chewing and smoking objects helped him to withstand the pangs of hunger. The inexorable demands of life still exist despite our progressive civilization, hence modern man so readily accepted smoking from his savage brother. Smoking and chewing certainly alleviate hunger even today, a fact which was repeatedly shown during the last war. But as modern man rarely suffers real hunger in the biologic sense, the cravings of the erogenous zone of the mouth have to be gratified in other ways; smoking, chewing, drinking, etc., serve this purpose extremely well. . . . .

"That some smoke more than others, is in the first place a question of constitution. Male aggression is also evidenced in the tobacco habit, and as modern man bears the heaviest load of civilization he smokes, chews, and drinks, more than the woman, who is passive by nature. The women smokers that one met in former years, especially in Anglo-Saxon countries, mostly belonged to the aggressive prostitute type, but as present day social and economic conditions hamper women more and more in the exercising of her maternal functions and force her into activities that are essentially unfeminine, she too, gradually takes to smoking. Of the forty-five women smokers that I have questioned only six really craved smoking; most of the others made a bluff at it, they just imitated Mrs. or Miss so-and-so whom they admired. Two single women told me that the only reason they smoked was because it stopped their habit of nail and finger biting. Here it was clearly a continuation of an auto-erotic activity, while in others it was an expression of masculine protest. It was an unsuccessful effort to be a man with whom they were forced to compete against their will. Unlike their primitive sisters and modern men, few modern women really enjoy smoking and those who do, use it for the same reason as men; it supplies a need.

"Viewed in this light, it seems quite natural that the stolid catatonic-looking American Indian, who formerly led the same monotonous and rude existence as is still observed among his South American brothers, should have developed the art of smoking, an infantile autoerotic manifestation. Originally he used tobacco at ceremonials, he might have wished to identify himself with the Great Spirit from whom all fire comes: later he used it just as other races used food. The 'Pipe of Peace' undoubtedly has the same significance as the 'Communal Feast' among the Arabs and other races. One cannot indulge in interpretations concerning things that have happened so many centuries ago, but it would seem plausible that the origin of smoking as a gratification was due to the desire to be big, to look formidable. . . . In the Indian, it was first a desire to hold fire in the mouth, or to blow smoke at their enemies in order to confuse them and make themselves look equal to the gods. And the only reason why the modern boy takes to smoking in spite of his first disagreeable experience with it, is also because he wishes to be big. In other words, smoking is an expression evidenced by almost all modern and primitive men. It is an expression of an aggressive *libido* which the individual attempts to adjust. In the normal person who has the average amount of *élan* vital it is an excellent outlet; in the neurotic, it is woven into

conflicts. Its existence in the average man shows a healthy reaction to life; it signifies that the individual has a normal way of giving and taking *libido;* it matters not that it serves as a mode of exhibitionism. Contrary to the general belief I have never seen a neurosis or psychosis that could be definitely attributed in any way to tobacco. On the other hand, one is more justified in looking with suspicion on the abstainer; one may think of a physical or nervous disturbance. Most of the fanatical opponents of tobacco that I have known were all bad neurotics. For the average normal individual who uses it moderately—and normals always do—it is useful and pleasurable as alcohol and other outlets."

PSYCHOANALYSIS AND PSYCHIATRY

Among the recent developments of the newer interpretative psychiatry which has received a great impetus from psychoanalytic investigation, in contradistinction to the older descriptive psychiatry where the chief emphasis was placed on symptoms rather than on mechanisms, may be mentioned the work of Bleuler on schizophrenia, and of Freud on melancholia and the underlying homosexual component of the paranoiac states. Of great importance along these lines, there can be mentioned the profound and illuminating paper by Dr. August Stärcke (*International Journal of Psychoanalysis,* Vol. 2, Nos. 3-4, 1921). On account of its length and its condensed style, this contribution is very difcult of abstract, so that only a brief outline can be given here. The reader whose interest is stimulated by this abstract, must turn to the original paper for further details.

Starting with an introduction on "The Investigator and his Methods" the paper discusses in turn the relations between the neuroses and psychoses, the normal and the abnormal, metaphrenia, regression and fixation and a consideration of certain clinical facts. What follows is practically a direct verbatim summary, only those parts being selected which are of clinical interest.

"The application of psychoanalysis to the psychoses has not led to an effective therapy like its use in the transference neuroses and more recently the war neuroses. The pathological explanation of the psychoses, however, has undergone radical alterations through Freud's concepts, just as was the case with chemistry as a result of Dalton's and Lavoisier's work. The aim of any discussion of the issues relative to this subject must be to ascertain the reasons why the outcome of this new psychopathology has been a new therapy for the 'neuroses,' and not one for the 'mental diseases,' and also to suggest possible improvements."

"The field of the psychoses is not, as is imagined, the most difficult, but the easiest field of psychology to work upon. Paleo-psychic layers that otherwise lie deeply buried and can only be reached after laborious mining are exposed to view in the psychoses. Those things which are betrayed in the life of the healthy person and the neurotic only through indications, the real value of which can only be recognized through the microscope of psychoanalysis, are visible to all, in caricature-like enlargement, in the mental patient."

"Difficulties arise from the fact that the psychotic person like the neurotic only seeks advice on his own initiative in exceptional cases. The concept of psychosis is only conceivable in a society: an isolated individual, Robinson Crusoe for instance, could have a neurosis, but not a psychosis, because a psychosis can only exist in relation to society regarded as normal."

"All psychoses and neuroses are mixtures, just as, according to Freud's striking analogy, the rock consists of several minerals. In many cases one of the syndromes assumes sole power or at any rate becomes most conspicuous from outside. The mixtures consist of:

"1. The actual neurosis, anxiety neurosis, neurasthenia and hypochondria symptoms, which are the direct accompaniment either of sexual stimulation or exhaustion, or of the extraordinary charge of *libido* of other erotogenic zones.

"2. The transference neuroses, conversion hysteria, anxiety hysteria, and obsessional neuroses,—further elaborations of anxiety through conversion, protection formation (phobia) and reaction formation.

"3. Other less known transference neuroses, which as restitution attempts in paraphrenia (= schizophrenia + paranoia) and other psychoses lead the *libido* again to objects and receive their particular character through the great quantity of negative *libido* with which they have to deal, as well as their permanent tendency to return to narcissism.

"4. The narcissistic neuroses—results of the regression of object—erotic quantities to narcissism—as they are found in rather pure form in paraphrenia, but also as one of the chief constituent parts in the other psychoses.

"5. The hallucinatory wish-psychoses—constituent parts in the other psychoses.

"The psychotic carries out in reality what the normal person and neurotic carry out in phantasy. Thoughts which normal people and neurotics repress become as conscious reality to the psychotic.

"The relation between neuroses and psychoneuroses can be summed up as follows. Both categories originate from the relative damming of *libido* as cause, and from the infantile fixation and the ambivalency as dispositional factors.

"The difference between the two groups is a quantitative one. The boundary is dependent

on the stage of development or regression of the social civilization.

"The criterion of the lay concept of mental disease lies in the technique of the morbid gestures (including speech), which shocks the normal repression. In both groups the regression can pass from *libido* and *ego* impulses to the very lowest stage. The regressing quality and the intensity of the regression of the *libido* are in general less in the neuroses. The reconstruction is a compromise in the neuroses; its result stands on a low stage in general in the psychoses, as much for the *libido* as the *ego* impulses. The obsessional neurosis takes a medial position between psychoses and neuroses."

THE PROGNOSIS OF INVOLUTION MELANCHOLIA

This very suggestive paper by Dr. John T. MacCurdy and the late Dr. August Hoch (*American Journal of Psychiatry*, Vol. 1, No. 3, 1922) comprises a clinical study on a problem which had interested Dr. Hoch for many years. Involution melancholia, sometimes simply referred to as "melancholia," is not only one of the oldest terms in psychiatry, but it is also one of the most frequent forms of mental disease. The clinical position of the group and its outcome have been the subjects of discussion for many years. Until 1907, particularly following the lead of Kraepelin, the disease was held to be a clinical entity and was so held even in the seventh edition of Kraepelin's textbook published in that year. In 1907, however, there appeared the work by Dreyfus, in which there was investigated the later developments of a series of cases from the Heidelberg clinic in which the diagnosis of melancholia had been made from fifteen years previously. Dreyfus' conclusions have had a quiet influence on psychiatric classification and since then these cases have been regarded as belonging to the manic-depressive group. The most crucial and practical question still remained however, that of prognosis, nad it is with this aspect that the present paper deals. The following conclusions are drawn in this investigation.

The results in a series of sixty-seven patients in whom the final outcome was determined in all but one case, led to the conclusion that patients with involution melancholia recover unless they show as dominant symptoms: marked insufficiency of affect, peevish or auto-erotic behavior, or ridiculous hypochondriac delusions which usually are concerned with the alimentary tract. These prognostically bad symptoms may be present for a short phase of the psychosis in women at the menopause without their prejudicing the outlook for recovery. All patients who eventually recover show some improvement within four years after the onset. The others run a chronic course or die unimproved.

MENTAL DISORDERS OF CHILDREN

Bernard Glueck (*State Hospital Quarterly*, Feb., 1923) suggests that much of the psychopathology of childhood may be explained on the basis of unhygienic habits of biological and social adaptation. He proposes the following tentative classification:

1. Arrests of intellectual development of various degrees of intensity.
2. The constitutional psychopathic states.
3. The psychoses of childhood, such as toxic-exhaustive deliria, manic-depressive states, schizophrenic reactions, syphilitic disorders.
4. Organic nervous disorders.
5. Functional nervous disorders, such as psychoneuroses, reactive manifestations, convulsive phenomena, spasms and tics, speech disorders, sleep disturbances, kinetic disturbances.
6. Conduct disorders.
7. Endocrinopathies.

(It is refreshing to see speech disorders grouped as functional nervous disturbances, for all speech disorders, particularly stammering, are preëminently the physical manifestation of an anxiety hysteria.

The sleep disturbances can be further subdivided into the nightmares, which are really nocturnal attacks of anxiety hysteria, and somnambulism or sleep-walking. In this latter the unconscious activity of the child instead of being dreamed out is acted out, thus producing the protean and often dramatic manifestations of sleep walking (I. H. C.).)

CONSTRUCTIVE FORMULATION OF SCHIZOPHRENIA

In a paper with the above title (*American Journal of Psychiatry*, Vol. 1, No. 3, 1922) Dr. Adolf Meyer reëmphasizes his well-known psycho-biological concept of schizophrenia. As a result of a quarter of a century's unpredjudiced clinical observation of the facts in the psychoses, particularly those showing what are termed schizophrenic reactions, the following conclusions are summarized.

"For the time being to abandon the prognostic factor as a nosological criterion, replace the term 'manic-depressive' psychosis by affective-reaction group, giving in each case the type and number of the attacks and wherever present, the admixtures; replace the term dementia praecox by schizophrenia for the full-fledged forms, recognize transition forms and specify the topical and formal characteristics, the episodic or protracted or progressive character and the extent of any deterioration, if it is present. By doing this we free ourselves from the nosological obsession of premature classification, without in the least slighting any actual gain either of Kraepelin or of any other investigator."

Case Records
of the
Massachusetts General Hospital

ANTE-MORTEM AND POST-MORTEM RECORDS AS USED IN WEEKLY CLINICO-PATHOLOGICAL EXERCISES

EDITED BY

RICHARD C. CABOT, M.D., AND HUGH CABOT, M.D.

F. M. PAINTER, ASSISTANT EDITOR

CASE 9471

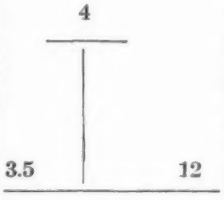
First entry. An Italian clerk of twenty-three entered August 4, 1923, for relief of general weakness, malaise, dyspnea, slight cough, palpitation, and slight aching in the joints.

F. H. Unimportant.

P. H. His general health had always been good. He had the usual diseases of childhood and possibly scarlet fever. He had occasional head colds and slight headaches. At seven he had tonsillectomy. Since then he had had occasional sore throats. Several years ago his nose was injured.

P. I. Four and a half years ago, after a mild attack a week and a half in duration of influenza and tonsillitis associated with general malaise, slight fever and some chilliness, he had his first attack of painful and swollen joints. He was confined to bed for nine weeks. On returning to work he developed sore throat, soon followed by mild general constitutional symptoms. One morning on awaking he had considerable swelling of all the joints, and pain which increased in severity until it was almost impossible to bear the weight of the bed clothes. There was local heat but no redness. He felt slightly feverish and at times chilly, but had no actual chill. At the initial attack all the joints became involved simultaneously. Active or passive motion aggravated the pain considerably. In addition to it there was swelling of the precordium. The acute condition did not last very long. Most of the nine weeks of his illness was a gradual recovery. In addition he spent a few months in recuperation. From that time he was free from symptoms until two months ago, when he had a second attack of painful and swollen joints. A month ago cardiac signs were discovered. During the past two weeks cardiac symptoms had developed. He attributed the present attack of debility to worry about his mother's condition. A short time before the joint symptoms developed he had slight malaise and weakness. Then followed pain and stiffness in the left calf muscle, and soon afterwards pain and swelling in the right ankle, with rapid involvement of the left ankle. He gave up work. A few days after the ankles had been involved, when the inflammation was subsiding, the knee-joints became involved, and soon after this the ankle-joints again, with the left shoulder joint. Until a few weeks ago he was up and about the house. For three weeks his joints had given him no trouble, but he had developed at first a "full feeling" in the epigastrium, with gradual development of slight dyspnea, which in the past week had increased so that he slept in a more or less semi-recumbent position. His sleep was still considerably disturbed, especially in the past few days. The "fullness in the stomach" had increased until it had several times caused him to vomit. In the past few days he had had palpitation and slight precordial pain. Recently he had had slight unproductive cough and had urinated once or twice at night.

P. E. Poorly nourished. Rather pale. *Lungs* clear. Apex impulse of the *heart* felt in the fifth space, diffuse. Enlarged to the right and left. Percussion measurements as shown in the diagram. Forceful bounding pulsation, best seen and felt in the fifth space 1 cm. outside the nipple line, faintly felt in the sixth space. Whole precordium lifted with apex. Apical thrill. Systolic murmur replaced first sound at apex and base. Short diastolic at the aortic area and the apex. *B. P.* 130/50-0. *Abdomen.* Dull (feces?). Liver and spleen palpable. Liver edge felt. *Extremities.* Fingers somewhat clubbed. *Pupils* and *reflexes* normal.



Measurements by percussion.

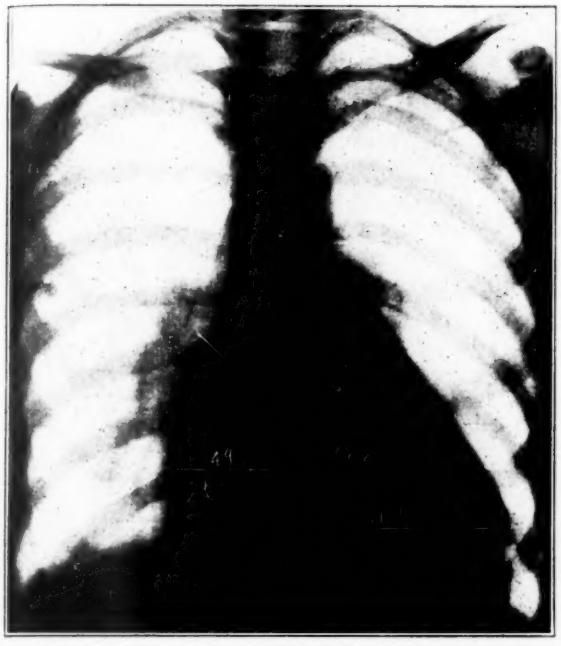
T. 98°-103.1°. *P.* 91-129. *R.* 18-36. *Urine.* ℥ 42-83. Sp. gr. 1.010-1.018. A very slight trace to a trace of albumin at all of five examinations, red and white blood corpuscles at all but one, twice in large numbers, granular casts at three. *Renal function* 50 per cent. *Blood.* Hgb. 65 per cent. Leucocytes 13,600-34,500. Reds 3,580,000-4,160,000-3,100,000, moderate achromia, only slight variation in shape, with occasional tendency toward tailed forms. One *blood culture* negative, one showed streptococcus. One *Wassermann* weakly positive, one negative. *X-ray* August 17. See illustration.

Orders. House diet. Fluids as desired. Morphia gr. ¼ by mouth at bed time. Keep in bed. Soapsuds enema. Digifolin ampules 3 s.c. tonight. August 5. Digitalis leaves gr. iii t.i.d. August 6. Omit all medication. August 15. Fluids and calories forced.

August 16 transfusion of 510 c.c. was followed by a chill for a short time. The red count

was not markedly changed. August 21 the patient was discharged with instructions for rest and hygiene.

Second entry. September 18, 1923, he reentered. During the greater part of the interval

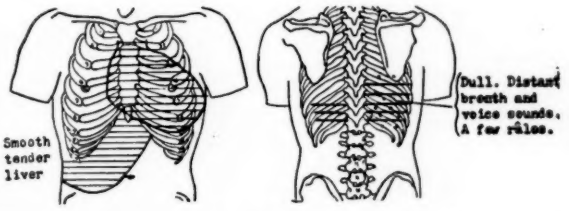


Chest 25.5 cm.

Marked enlargement of the heart shadow. Increase apparently marked across the base in the region of the auricles. No change in the supracardiac dullness. Marked increase in the hilus shadows on both sides, with thickened prominent lung markings extending well out toward the periphery of the chest, and a large amount of mottling between the larger lung markings. These changes apparently do not reach the periphery or apices, and may be cardiac in origin.

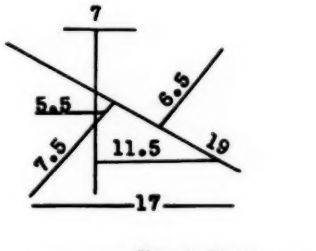
since his discharge he had been in bed, in the afternoon walking about for a short time. His condition had remained in general about the same, perhaps growing somewhat worse, definitely so for the past few days. After he had been home a short time he began having bloating and a full feeling in the epigastrium, so that it embarrassed his breathing a good deal toward the evening and usually after eating. With the bloating he usually had cough with watery mucoid sputum, and frequently vomited with relief. After the vomiting he frequently had palpitation and precordial pain, which at times radiated to the right side. A few days before reentry he noticed for the first time toward evening pitting edema of the ankles. He was dyspneic when at rest, especially when bloated. He had had no joint symptoms except some pain and stiffness in the right calf a few weeks ago. He thought he had some evening rise of temperature.

P. E. (As before except as noted.) Very emaciated. Slight mucoid cough. *Lung* signs as shown in the diagram. *Heart* very large. Diffuse heaving precordial impulse and thrill. Systolic blowing murmur over the precordia, best heard at the pulmonic area. Crisp short



diastolic. Heart heard throughout chest. *B.P.* 105/50. *Abdomen.* Spleen not felt (abdominal distention). Liver as shown in the diagram. *Extremities.* Great edema of the feet and ankles. Red petechiae over the shins.

T. 99°, steadily falling to 94°. *P.* 130, falling to 86. *R.* 34-16. *Urine.* ℥ 20-33. Sp. gr. 1.018, occasional leucocytes, no albumin. *Blood.* Hgb. 50-55 per cent. Leucocytes 32,800-33,200. Reds. 2,980,000. Polynuclears 89 per cent. Mononuclears showed large vacuoles in cytoplasm. Red blood corpuscles showed considerable variation in size. Typical macrocytes. A few microcytes. Most of the fields showed red cells well filled with hemoglobin; others showed slight achromia. A few tailed forms and oblong cells. Platelets strikingly decreased and small. *Wassermann* moderately positive. *Non-protein nitrogen* 95 mgm. *X-ray.* General appearance of the heart practically the same as at the previous note, possibly slightly more enlarged. Right antrum dull. Right superior bicuspid tooth supporting bridge showed evidence of a small area of absorption at its apex.



Measurements by X-Ray in September.

Orders. House diet. Brandy 3 iv 4 i.d. Force fluids. Morphia gr. 1/6 s.c.; repeat in three hours if necessary. September 15. Morphia gr. 1/6 s.c. September 16. Rectal glucose taps ℥ vi every four hours. Sherry 3 iii t.i.d. Magnesium oxid gr. x t.i.d. after meals. Sodium bicarbonate gr. x. Any soft solids and liquids he will take. Small quantities frequently. Codeia gr. 1/2 by mouth at bed time. September 17. Repeat order for codeia. Veronal gr. x with phenacetin gr. v in milk. If vomiting give codeia gr. i by mouth. September 18. Caffein sodium salicylate gr. vi s.c. Black coffee 3 iv by rectum. Seven hours later

caffein gr. iii with atropin gr. 1/100; repeat the caffein every two hours for four doses. Keep warm.

The patient vomited almost everything taken. There was considerable visceral pain from liver distention.

September 18 transfusion of 500 c.c. was followed by a moderately severe chill and prostration. The patient had been growing progressively worse since admission. The evening of September 18 he became weaker, and the pulse failed decidedly, though it improved with caffein. Early the next morning he quietly died.

Discussion

By Dr. Richard C. Cabot

Notes on the History

From this preliminary statement we should guess that he had some infection. We cannot guess anything further.

At the beginning of the present illness he was nineteen years old,—at the proper age for rheumatic fever. We have no reason to doubt, since it affected many joints and confined him to bed, that it was what we call rheumatic fever.

We do hear statements about the pain in rheumatic fever as strong as this, even in patients who are not hysterical. They want a cradle often over the feet to keep the bedclothes off.

"Swelling of the precordium" seems to me very unlikely even though it was in the record. We shall take the liberty of being skeptical.

One month ago we first hear of cardiac symptoms. Heretofore they were all joint symptoms.

The "full feeling" in the epigastrium was probably from a congested liver, the dyspnea from congested lungs; the vomiting, passive congestion of the stomach:—a gradual increase of the symptoms of passive congestion in one organ after another, which with his history leaves us no considerable doubt that physical examination is going to demonstrate a heart lesion..

Notes on the Physical Examination

The x-ray as usual gives us the most reliable evidence about the size of the heart, although the measurements by x-ray are pretty close to those by percussion. We say that the heart measurement must not be more than half the total chest measurement. Here it is more than half, therefore the heart is enlarged.

They do not tell us the time of the thrill, but presumably it was systolic also.

This blood pressure report means probably that some sound persisted all the way down to zero, but the change from a click to a dull thud came at fifty. That is what we should expect with aortic regurgitation.

It is unusual to feel the spleen in such cases as this, common to feel the liver.

Clubbed fingers mean that the disease has not been a matter of the last few months but probably goes back to at least four and a half years ago.

This is the urine of passive congestion, with no evidence of nephritis.

He has secondary anemia, presumably due to sepsis.

If the blood culture was done under proper conditions, as we may assume it was, it gives us here the most important evidence we can have about this case, showing an acute endocarditis.

The patient evidently breathed during the x-ray examination. It is a poor plate, shows a big heart and that is all. There is nothing that we should speculate about particularly in the lungs. All that is said in the record about thickened lung markings and mottling is consistent with passive congestion such as we have in this case, and does not need to mean anything more than passive congestion, does not need to mean anything more than lung disease.

Presumably on account of his low red count they did a transfusion, which was followed by chill, as transfusions so often are, without there being anything wrong in the transfusion itself. Such a chill is often alarming but not dangerous.

He was discharged without anybody's thinking we had done him any good. They had done all they could; they did not improve him. They presumably thought he had an acute endocarditis on top of the chronic, as shown by the streptococcus in his blood.

At the second entry he has edema for the first time, his symptoms in the first place having been all due presumably to the sepsis of his acute endocarditis. Now he has edema in addition to what he had before in the lungs and liver. Before he was poorly nourished; now he is definitely emaciated.

I do not know what a "mucoid cough" is. I assume it is one in which we seem to hear râles in the person's chest.

The lungs show edema with some hydrothorax.

The diastolic blood pressure is about the same as before.

The petechiae mean acute endocarditis in all probability.

The red corpuscles are a little less than last time, showing that he has been losing in blood capacity. It is surprising that the platelets are decreased; they should be increased.

I do not think we have any reason to pay special attention to the positive Wassermann. We may come back to it.

The rather increased non-protein nitrogen does not necessarily mean any nephritis. We get the same in passive congestion.

I do not believe the absorption about his tooth had anything to do with the case. They were

going over him as well as they could to find a focus of sepsis, but did not find more than most people have.

DIFFERENTIAL DIAGNOSIS

We cannot, in my opinion, have any considerable doubt that he had acute endocarditis. If he had acute endocarditis it was probably on the mitral valve, because that is much the commonest place for it to be. Also most cases of acute endocarditis follow a chronic endocarditis, so I guess that he had chronic endocarditis, although our murmurs do not give us much information about that. If it is chronic it has probably caused some mitral stenosis. The aortic valve should be involved, whether by acute or chronic endocarditis or both we cannot tell. Purely acute vegetations can hold the valve open, preventing its closing and causing regurgitation. He certainly had regurgitation, and in my opinion it was probably due to an acute lesion.

I think he had acute endocarditis, in the first place because of the thrill, second because of the anemia, and third because of the petechiae, though we have no other evidence.

His heart is greatly enlarged, as it would be with a double lesion.

We have to mention the possibility of chronic pericarditis, which often is found in these cases, which we can never definitely diagnose; we have to put ourselves on record that it may be there.

Has he any nephritis? It is perfectly possible that he has an acute or subacute glomerulonephritis. His urinary gravity is a little low, but there is nothing that I can swear to. It is the kind of case where the kidney often does get hit, where we do have glomerulonephritis. It is perfectly possible that he has it, but there is no evidence that I can see. He has no uremia.

The diagnosis is acute and chronic endocarditis of the aortic and mitral valves, hypertrophy and dilatation of the heart, chronic passive congestion of all the organs, perhaps chronic pericarditis, perhaps acute or subacute glomerulonephritis.

A PHYSICIAN: How long does it take stenosis to develop?

DR. CABOT: I do not believe anybody is able to answer that question at the present time. Months certainly, years perhaps; that is as far as anybody can go.

A PHYSICIAN: What is the significance of the Wassermann?

DR. CABOT: I am glad you brought that up. He is an Italian. Italians in this country often have syphilis. He has a positive Wassermann. Those are all the facts we have. There is no history of syphilis, no lesions of syphilis. Our experience is that we are generally wrong when we make a diagnosis of syphilis on no further evidence than we have in this case. So I shall say that he did not have syphilis. In that I am influenced by the fact that I do think he has something else. We have good evidence of rheumatic joint lesions. It is not likely that he has two diseases. It is almost certain that he has the rheumatic trouble, therefore I believe he has not had syphilis.

A PHYSICIAN: Is there any further evidence of that precordial swelling?

DR. CABOT: We did not see it here on physical examination. I continue to think it was imaginary.

A PHYSICIAN: Do patients ever get well with streptococcus in the blood?

DR. CABOT: I never knew a patient to get well with it. Of course, it depends on how many colonies are found in the blood. As we get it here I do not remember any case that did not die.

DR. JOSEPH AUB: This was not one of my patients, but I did see a case this year where there was a positive blood culture and the patient got well.

DR. CANER: I have heard Dr. Lord say that he has never seen patients with both a positive culture for streptococcus and petechiae get well.

DR. AUB: Why was there such a very large heart at the first entry?

DR. CABOT: Because he has a double lesion. We do not need to suppose pericarditis to account for that.

A PHYSICIAN: Will mitral disease alone cause it?

DR. CABOT: Yes, it will. I have just been going over our cases of mitral disease, and have had some hearts weighing 750 grams with mitral alone. But that is rare.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Bacterial endocarditis.
Streptococcus infection of blood.

DR. RICHARD C. CABOT'S DIAGNOSIS

Acute and chronic endocarditis of the aortic and mitral valves.
Hypertrophy and dilatation of the heart.
Chronic passive congestion.
Acute nephritis (?).
Chronic pericarditis (?).

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesions*

Vegetative endocarditis of the mitral and aortic valves.

Vegetative endocarditis of the endocardium of the right auricle.

2. *Secondary or terminal lesions*

Hypertrophy and dilatation of the heart.

Chronic passive congestion, general.
Infarcts of lungs, spleen and kidneys.
Chronic glomerulonephritis, capsular.
Ascites.
Edema of the ankles.

DR. RICHARDSON: We were not permitted to examine the head.

There was edema of the legs. There were red spots scattered over the feet and the anterior aspect of the right arm.

There was considerable thin clear fluid in the peritoneal cavity,—ascites. The liver was seven cm. below the costal border. The diaphragm was at the fifth rib on the right, at the fifth interspace on the left.

In the pleural cavities there were fifty c.c. of fluid on the right and forty c.c. on the left. with a few adhesions on each side. The lungs were rather voluminous, but showed nothing for note except for a few small dark red areas scattered in the lung tissue.

There was fifty c.c. of clear fluid in the pericardium, the beginnings of hydropericardium. The heart weighed 670 grams,—a very large heart for the lesions mentioned. The myocardium was three to four mm. on the right, eight to nine on the left. The cavities showed some dilatation and were filled with blood clot. The valve measurements were as follows: mitral 12 cm., aortic 7.5 cm., tricuspid 14 cm., pulmonic 9.5 cm. That is an increase in the circumference of the mitral, with the others about as usual, except that the tricuspid is a little large. The tricuspid and pulmonary valves showed no lesions. But on the mitral, extending over practically the whole length of the free margin of the curtain, there were numerous smaller and larger frank vegetations. These vegetations extended up high on the wall of the auricle. The aortic cusps showed a number of vegetations, not so large though as those on the mitral.

DR. CABOT: Was there anything chronic on those valves?

DR. RICHARDSON: I did not see them; but a mitral valve of twelve cm. of course indicates that the amount of chronicity, if there was any, was very slight. The extension of the vegetative patches upon the auricle is rather characteristic in these viridans infections.

The spleen weighed 395 grams and was moderately enlarged. We must remember that this man was an Italian. There were a few infarcts.

The kidneys weighed 582 grams. This means they were enlarged. The microscopical examination showed capsular glomerulonephritis and infarcts.

The culture from the heart blood showed a streptococcus of the viridans type.

DR. CABOT: There was no pericarditis?

PLATE I.—Section of valve. A, B, bacterial fringe. × 1000.

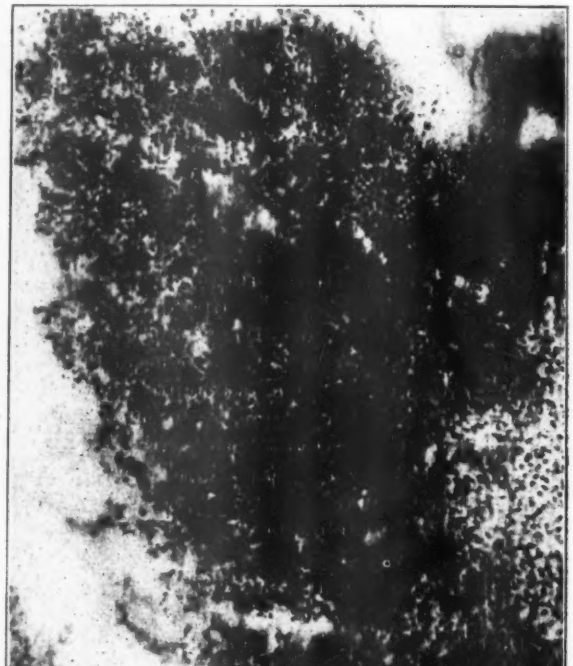


PLATE II.—High magnification of the area at A. × 1500.

Case 9471. Streptococcus viridans endocarditis. Dr. William H. Smith.

Photomicrographs by Dr. Albert E. Steele.

DR. RICHARDSON: None.

DR. YOUNG: Would you get as much nitrogen retention as this in the terminal hours of any other condition than one causing passive congestion? This was done the day of death.

DR. CABOT: I remember 125 in a case of typhoid fever; we scratched our heads over that a lot. Of course there is passive congestion. So that I should not be able to say I had seen it in cases without passive congestion. I do think it is important not to make a diagnosis of nephritis on a high blood retention unless we have other evidence.

A PHYSICIAN: May I ask Dr. Richardson if the lungs showed any changes?

DR. RICHARDSON: Nothing but chronic passive congestion.

DR. CABOT: The x-ray did not lead us to expect anything more than passive congestion.

A PHYSICIAN: I have been interested in the changes in the lungs in passive congestion. I wondered whether that mottling was wholly due to passive congestion or whether there was a true fibroid condition there.

DR. CABOT: But our general impression is that we can get just as much mottling from passive congestion alone, that we must not conclude that we have an organic condition in the lungs if we have something else to account for the mottling.

A PHYSICIAN: How do you explain the weakly positive Wassermanns?

DR. CABOT: I do not explain them. We have a great many here, although the test is done as carefully as possible. Our rule in all departments of this hospital, including the syphilis department, is never to make a diagnosis of syphilis on a weakly or strongly positive Wassermann.

A PHYSICIAN: What is the antigen used?

DR. CABOT: I don't know what antigen we are using here. But I think it is a generally accepted observation that one should never make a diagnosis of syphilis on a Wassermann reaction no matter who made it or what kind of antigen was used, unless there is other evidence in the patient's history or body to support it. I think a great deal of harm is done by concluding from a weakly or moderately or strongly positive Wassermann that a patient has syphilis.

CASE 9472

A GERMAN teamster of thirty entered March 2, 1910. He spoke practically no English.

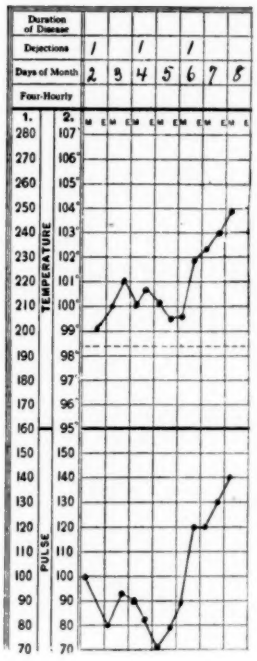
F. H. Unimportant.

Habits. He drank two or three glasses of beer a day, and had a rare spree, but was not a drunkard.

P. H. He was always well until he had an attack of "pneumonia" which kept him in a Boston hospital for four weeks in June, 1909.

P. I. Six days before admission he became overheated while working, and took his coat off. Following this he had a chill, and went to bed with fever and general malaise. He did fairly well for three days. Then he changed doctors. The new doctor gave him medicine which immediately started violent vomiting. Since that time he had been able to keep nothing down, not even water. His bowels moved twenty times a day or oftener. He urinated once or twice at night. He had some headache.

P. E. A powerful, well nourished man. The gums showed a suggestion of cyanosis at the margins. Apex impulse of the *heart* in the fifth space inside the nipple line. Localized, fairly forcible impulse. No enlargement to percussion. Action regular. A very faint blow followed the first sound at the apex. A_2 greater than P_2. Pulses and arteries normal. Systolic *B. P.* 140. *Lungs, abdomen, pupils* and *reflexes* normal. No edema. Some tenderness to deep pressure of lower muscles of back.



T. and *P.* as shown in the chart. *R.* 20-35, with a terminal rise to 69. *Urine.* ℥ 12-28. Sp. gr. 1.020-1.032. Cloudy at one of three examinations, the slightest possible trace to a large trace of albumin at all, a few leucocytes at two, a slight trace of acetone at one. *Blood.*

Hgb. 100%, leucocytes 5,600, polynuclears 78%, reds normal. *Blood culture* negative. *Widal* negative.

The patient grew increasingly dull. The morning of March 6 there was definite stiffness of the neck and a positive Kernig. The patient had to be fed. The fundi were normal. There was no eye muscle disturbance. A lumbar puncture was done, with withdrawal of 25 c.c. of yellowish slightly opaque fluid under pressure, containing numerous macroscopic flakes; no clot, reaction acid, a large trace of albumin, sugar present; cell count 333, 250 lymphocytes, 83 polynuclears. Culture of the fluid was negative. A smear showed a great preponderance of lymphoid cells, few leucocytes, no organisms.

The patient failed rapidly from this time. He was delirious most of the time. He was relieved somewhat by the withdrawal of 30 c.c. of spinal fluid. Moderate internal strabismus appeared. The morning of March 8 he rather suddenly died.

Discussion

BY DR. RICHARD C. CABOT

NOTES ON THE HISTORY

His "pneumonia" was less than a year before he came here.

The presenting symptoms seem to be tremendous vomiting and diarrhea, with some other symptoms suggesting an infection.

Otherwise this is a negative history, essentially. There is nothing that we can put our finger on.

NOTES ON THE PHYSICAL EXAMINATION

The chart shows a steady temperature lasting about five days, going up at the end, but always high.

There is nothing that we can blame the kidney for, I should say. The effect of his general condition was shown in his urine.

We have very little to go on—nothing in the circulatory system, nothing in the urine, nothing in the blood, nothing helpful till we reach the nervous system and the spinal fluid, which showed 333 cells in place of the normal five to ten cells.

DIFFERENTIAL DIAGNOSIS

We can say nothing but meningitis, of course. We have no physical signs except the stiff neck, the Kernig and the spinal fluid, with at the end the internal strabismus. Our question therefore is, what kind of meningitis did he have?

1. He is said to have had a pneumonia a year before, which may have been a tuberculosis. Many such mistakes occur.

2. This does not come on in the way that the ordinary type of cerebrospinal meningitis comes on. It comes on slowly. He was here four days before anybody noticed any stiff neck. Before that he was vomiting and having diarrhea, which is not what we expect in acute epidemic meningitis.

3. The count of cells is not distinctive. Tuberculous meningitis ought to be practically all lymphocytes. The ordinary meningococcus meningitis ought to be all polynuclear leucocytes. Here neither one nor the other predominates.

4. Can he have a syphilitic process in his cord? That would give him all these cells. I do not see how he could, because he died so quickly. There is no syphilitic process which will kill a man at this rate. It seems to me it must be either tuberculosis or acute meningitis.

Dr. Young: Ordinarily wouldn't you get a culture if it were meningococcus?

Dr. Cabot: Ordinarily we should see organisms if they made a decent smear. But I know that we do not always see organisms in any type of meningitis sediment.

Dr. Richardson: No. Dr. Gannett tapped his meningitis cases, and I had an opportunity to study them. They would run some days quite clear, and then the fluid would look as though it came from the sewer. When clear no organisms, when foul, many. If there are none, however, it would point to one of two things, either the epidemic or the tuberculous form of meningitis.

Dr. Cabot: On the whole it seems to me a little more like tuberculous than the other kind. I say that because of the way the symptoms came, because of the internal strabismus, and third, because of the way he died.

Miss Painter: Now that you have made your diagnosis, Dr. Cabot, I will give a piece of evidence which I suppressed. A smear from a digested clot of the spinal fluid showed many tubercle bacilli.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Tuberculous meningitis.

DR. RICHARD C. CABOT'S DIAGNOSIS

Tuberculous meningitis.

ANATOMICAL DIAGNOSIS

Tuberculous meningitis.

Dr. Richardson: We were permitted to examine only the head. The meninges showed the characteristic picture of tuberculous exudate, that is, a grayish, homogeneous exudate in

places showing rather well marked (in this case) tubercles. The brain weighed 1418 grams. The tissue was a little pale and soft but otherwise negative.

Microscopical examination of the spinal fluid at necropsy showed tubercle bacilli, and Fehling's test for sugar was positive. Microscopical examination of the meninges showed the typical lesions of tuberculous meningitis.

DR. CABOT: In sleeping sickness sugar is high, not simply present, isn't it?

DR. RICHARDSON: Ordinarily. I did not know the amount in this case.

CASE 9473

AN American housewife of sixty-seven entered September 18, 1923, for relief of jaundice of twenty-seven weeks' duration.

F. H. Good.

P. H. She had been fairly healthy. When a child she had rheumatic fever. "All her life" she had had frequency D 3-4. She had one N 8-10 stillbirth and six healthy children. She occasionally had dysuria. For three years she had had a productive cough and for three winters attacks of "asthma"—wheezing, dyspnea and palpitation.

P. I. Three months before admission she became nauseated and vomited "a cupful of bile." Two weeks later she awoke one morning, vomited more bile, and noticed that she was jaundiced. The jaundice had persisted. She had had no pain. She had lost her appetite, was nauseated most of the time, had lost weight, had severe itching, was restless, and felt very weak. For the first six weeks she had diarrhea, D 5-6. N 3-4 September 17 she began to have soreness over the left side, still present, especially marked under the right costal margin. Her stools had been clay colored, her urine very dark. Her bowels were now normal.

P. E. A weak old woman with deeply jaundiced skin and sclerae, complaining of itching and showing evidence of loss of weight. *Lungs* negative. *Heart.* Apex impulse not seen or felt. Percussion measurements not recorded except left border of dullness 16 cm. from midsternum. Action irregular. A systolic murmur over the precordia. An occasional extrasystole. *B. P.* 160/80. *Abdomen.* The liver edge could be definitely made out, but it seemed enlarged. In the region of the gall-bladder there was a tender moderately hard mass the size of a small orange moving with respiration. *Genitals* cyanotic. Cystocele and rectocele. Cervix seemed hard, irregular and small. No masses felt in vaults. Uterus not made out. Small papillomatous mass seen protruding from posterior vaginal wall just anterior to cervix. *Extremities.* Both lower legs showed slight pitting edema and were also tender. *Pupils* not recorded. *Reflexes* normal.

Before operation *T.* and *R.* normal, *P.* 80-95, *urine* not recorded, *blood,* hgb. 75%, leucocytes 26,000, *clotting time* 12-17 minutes, *non-protein nitrogen* 33.6 mgm. *Wassermann* negative. *Stools.* Guaiac negative.

*The morning of September 19 the patient was very much worse, irrational, almost pulseless. The abdomen was tender and rigid throughout.

Operation was done that morning. The patient was moribund after it, and died late the same evening.

DISCUSSION

BY DR. EDWARD L. YOUNG, JR.

This is very suggestive to me of habit frequency, because an organic frequency, that is to say based on renal tuberculosis or some damage to the urinary tract, certainly would not have lasted to sixty-seven from early life.

Without going into the physical examination, this history gives us very definitely a disease of the biliary tract somewhere, or disease associated with it. Jaundice lasting as long as this practically throws the case out of the class of catarrhal jaundice, although in the work just recorded by Drs. Jones and Minot they report two or three cases of jaundice of very long standing—several months—that they class among the diseases coming in this group. But with this she has had loss of weight and persistent clay-colored stools. The other symptoms of course are the symptoms going with the jaundice as such. Itching, restlessness and weakness all go with the presence of bile in the skin and the absence of bile in the bowel. At her age, with a painless jaundice and loss of weight, we think at once of carcinoma obstructing the flow of bile.

The blood pressure is about what she is entitled to at her age.

The mass they speak of makes us think of the law of contracted versus dilated gall-bladder. That is, it adds one more bit of evidence in favor of carcinoma in that we can feel the enlarged gall-bladder itself; whereas if it were one of the rare cases of cholelithiasis without pain the inflammatory process going on with that would result in the contraction of the tissue and a small organ.

They are trying to see if there has been what

*In the summary discussed by Dr. Young this paragraph did not appear.

does occur at times, a metastasis from a carcinoma high in the abdominal cavity down into the posterior vault. Just what this mass is I do not know, because a tumor of the vagina itself is very unusual. I hope Dr. Richardson's attention was called to it. Whether or not that can conceivably mean that this was a malignant cervix and that was a bit of the carcinoma showing below it I do not know. It does not sound like it.

The clotting time is somewhat prolonged. The non-protein nitrogen is essentially normal.

I do not see that we have any right to make any other diagnosis than malignant disease of the head of the pancreas obstructing the common bile duct. We have complete absence of bile lasting for several months and loss of weight. Of course it is true that the upset of metabolism due to jaundice and the absence of bile in the intestine will cause considerable loss of weight. But at this age and with all the symptoms pointing so definitely toward it, it seems to me that is the only diagnosis we can consistently make. I shall never forget the time, however, when Dr. Maurice Richardson put in a consultation to Dr. Shattuck simply asking, "Diagnosis and treatment?" in a case like this. Dr. Shattuck's answer came back: "Diagnosis, probably malignant. Treatment, operation, because of the fallibility of human judgment." And in that particular case a stone in the common duct was found and the woman got well.

I see no reason to make any other diagnosis than malignant disease. The operation should be done under local anesthesia with a quick suture of the common duct to the duodenum. I think everything could be done under local anesthesia. Any extensive operation would be contraindicated unless there is a condition other than that I have spoken of.

DR. YOUNG'S PRE-OPERATIVE DIAGNOSIS

Carcinoma of the head of the pancreas obstructing the common bile duct.

PRE-OPERATIVE DIAGNOSIS

Ruptured gall-bladder with peritonitis.

OPERATION

Gas-ether. 20 cm. right upper rectus muscle splitting incision. The patient was intensely jaundiced, a dusky coppery hue. The right side of the abdomen was board-like. She was in a desperate condition. The blood was typed and a donor was secured. As the patient was irrational local anesthesia did not seem possible. There was very little bleeding. All vessels were carefully tied. The abdomen was opened with the escape of a great amount of turbid foul bile. The liver was studded with carcinoma. In the region of the gall-bladder there was a mass the size of a fist apparently consisting of the gall-bladder, the transverse colon, the duodenum and the omentum. From behind and to the outer side of this mass foul bile was escaping. The head of the pancreas felt normal. The mass was not broken into, but cigarette drains were placed to the outer and the inner side of it. Abdomen closed in layers.

"Inasmuch as there is a huge cancerous mass the size of a child's fist in the liver immediately above the gall-bladder mass it seems likely that we are dealing with a primary malignant gall-bladder which is ruptured. A very rare condition."

FURTHER DISCUSSION

I wish we had seen the patient. As the record reads I cannot change my discussion in any way. But they saw the patient and we did not. We have a record which I think fits what I said. I think they did the least possible operating, and the patient did what she was entitled to do and died, because of her condition perhaps hurried by the operation.

CLINICAL DIAGNOSIS (FROM HOSPITAL RECORD)

Carcinoma of the head of the pancreas.
Peritonitis.

DR. EDWARD L. YOUNG'S DIAGNOSIS

Carcinoma of the head of the pancreas.

ANATOMICAL DIAGNOSIS

1. *Primary fatal lesion*

Carcinoma of the gall-bladder and liver, involving bile ducts.

2. *Secondary or terminal lesions*

Laparotomy wound.
General fibrinous peritonitis.
Arteriosclerosis of the aorta.

DR. RICHARDSON: A well marked icterus was present.

The examination was made through the wound of operation.

The liver was found to be full of new growth nodules, the largest about six by nine cm., and in the region of the gall-bladder there was a mass of new growth tissue in the midst of which were stones. The cystic duct was not found. The greater omentum was adherent to this mass and somewhat constricted the transverse colon.

The pyloric end of the stomach and duodenum were negative. The pancreas was negative and the duct was free. The other organs were not examined, so I cannot answer the question about the uterus. But from macroscopical and microscopical appearances it was carcinoma of the gall-bladder involving the bile-ducts and liver. There was a rather general peritonitis.

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HARVARD MEDICAL SCHOOL DORMITORY—THE STUDENTS' VIEWPOINT

THE proportion of undergraduates in the Medical School who have contributed to the Dormitory Fund has been previously reported—and it was 100 per cent. New information has now come from the classes as to how they want their money used, and it seems to be unanimously agreed that the sum collected, with *every* student sharing, shall be the basis of a fund to set apart some portion of the building as a memorial to Charles H. Best of Toronto.

Few people have enjoyed the unusual honor of being memorialized during their lifetime; we doubt if the honor has ever before fallen upon a medical student, and yet this proposal must be taken as an indication of the esteem in which the undergraduates at the Harvard Medical School hold their colleague in the Canadian University.

In proposing this use of their fund the students do more than to honor Best; they honor themselves, and they do more than to honor themselves; for they honor the Medical School by selecting its dormitory as the medium through which they would perpetuate their regard for their fellow student.

We who are in less close contact with undergraduate thought must regard as extremely significant this selection of the dormitory as the repository for their memorial. Justification of the dormitory idea is implied, and faith is implied in us who are responsible for the successful fruition of the idea. We must not betray this trust.

HARVARD MEDICAL SCHOOL DORMITORY

THE interest in this project is growing, and early success is assured if the solicitors will secure the results obtained by Dr. Harry Linenthal, who has been sending in subscriptions and donations daily, the total amounting already to over $6000, including $3300 from 27 lay subscriptions and $525 from eight physicians. Dr. Linenthal's work shows the result of interest and intensive effort. If his activities are duplicated by three hundred of the four thousand graduates of the Medical School the required amount will be raised.

Thus far, the returns indicate that reasonable activity on the part of the graduates will make it possible to close the campaign at an earlier date than has been thought possible.

It is fully recognized that doctors are busy men, and many find little time to devote to philanthropic work outside of the demands of practice, but this is the great outstanding opportunity to demonstrate interest in an important project. All should remember that adequate dormitory facilities will promote the *esprit de corps* of the students, relieve many of the isolations of remote quarters, and remove the anxiety common to a large number of those who are working under the handicap of insufficient funds. The dormitory will be a democratic institution, for the well-to-do and those less fortunate will be on a common footing.

It is not uncommon to find students at the present time suffering by reason of inadequate food and other living conditions. Prompt responses will come if large numbers of persons are given the opportunity to contribute.

WHERE CAN MEDICAL MEETINGS BE HELD?

THE meeting of the Suffolk and Middlesex South District Societies at the Boston Medical Library on November 14, at which Dr. William J. Mayo of Rochester was the principal speaker, offers a striking illustration of the fact that at present there are no adequate facilities in Boston for large medical meetings. On this occasion, due to the prominence of the speaker, not only was the hall at the Medical Library filled

to capacity, but some fifty or sixty physicians were unable to gain admittance.

The Library is the logical place for the routine meetings of the Society, but for gatherings of unusual interest, or for meetings at which a person of unusual prominence is to speak, it does not provide adequate space. This problem cannot be met by the Medical School or any of the hospitals, for their facilities are no better.

It can be met, however, by the proposed Medical School Dormitory, for its great hall, with a seating capacity of 600 persons, may be thrown open to all physicians, whether graduates of the school or not, when occasions of great interest demand it. Dr. Mayo's visit would have been such an occasion. We are glad of the opportunity to use this illustration of another service that the Dormitory will perform, not to the school alone, but to the medical community as a whole, for the doors of the University have always been open for the service of the public.

THE ANTI-VACCINATION CAMPAIGN

On November 2, 1923, the opponents of compulsory vaccination conducted a meeting in Symphony Hall, presided over by Mr. C. Augustus Norwood, a former state senator. In opening the meeting Mr. Norwood stated that the audience was in attendance by invitation of the Medical Liberty League, which was organized in 1918 and incorporated under the laws of Massachusetts. "Its more direct purpose is education in connection with the dangers and evils of compulsory vaccination." He further asserted that the League has no dispute with any school of medicine or doctors individually or collectively, but was founded on a desire for liberty in conformity with the principles which actuated our forefathers in the control of liberty. He then introduced Dr. F. Mason Padelford of Fall River.

The points made by Dr. Padelford were that we have to submit to an operation that is not defined, is not necessary, has failed to accomplish its purpose, and in many instances has destroyed life. It is necessary to appeal to the Legislature because that body has interfered, but since the Legislature has not responded we now appeal to the electorate. He then gave his history of smallpox and its treatment, as he has repeatedly done before legislative committees. He asserted that Jenner's claims had not been supported and vaccination is a fraud. He stated that if Jenner deserves any praise it is that cowpox modified by horse grease is the only thing that prevents smallpox. In other words, if one soils the hands with horse grease and accidentally infects the cow, you get, according to Jenner, the life-preserving fluid. He claimed that the pandemic of 1871-1873 was the result of vaccination experiments.

After claiming that arm-to-arm inoculation spread smallpox, he stated that if the vaccinators had used skimmed milk there would have been a falling off in the number of cases of smallpox.

He rejected all statistical information and expressed the belief that no competent physicians had proofs of the value of vaccination. The basis of his argument seemed to be that since the smallpox germ has not been recognized and we do not know the composition of vaccine matter it is illogical to employ vaccination. He referred to the well-known fact that some diseases have followed the use of vaccine and therefore argued that no objector should be compelled to submit to vaccination.

Mr. Albert F. Gilmore was then introduced, and based his arguments on the need for protection against medical aggression and especially state medicine. This latter term means the establishment of such laws as would govern the health of the country, the preservation of the public health and the welfare of our citizens. He claimed that there are those in the medical profession who have aimed to establish that situation, including in his interpretation the creation of health centers, compulsory examinations, compulsory treatment, and the extension of vaccination. After referring to state and federal laws relating to vaccination he contended that state medicine had presumed that the medical profession had arrived at definite forms of treatment, but the contrary is true, for there is no medical science, since science means exact knowledge, and laws will have to be continually changing in order to reflect the medical opinions of the day. He stated that medicine cannot be a science because it is not based on truth, and consequently should not be forced on the people by legislation. He felt that Massachusetts is better fitted to carry on the fight for medical freedom than any other State.

The chairman read a letter from Governor Baxter of Maine, a supporter of the Medical Liberty League, in which tolerance and breadth of vision were extolled and the claim made that every person has the right to protect his body from violence. Doubt was expressed as to the necessity of compulsory vaccination.

Mr. Henry D. Nunn, manager of the League, called upon the audience to sign the pledge cards which were distributed.

Mrs. Belle de Rivera of New Jersey, who claimed to believe in all schools of medicine, quoted from the Constitution of the United States, and argued that no medical cult should rise superior to the Constitution, and compulsory vaccination infringes on the rights of the people under the Constitution. She amused the audience by reporting that the transplantation of the kidney of a sheep into the body of a human being resulted in the death of the sheep and the patient, only the doctors surviving. She

felt that the people were partly to blame for the enactment of present laws because of the sublime credulity shown in believing the teachings of doctors, and condemned the intent of the small group of physicians who would impose upon the people a procedure without any consideration of the wishes of others. She regarded certain doctors as autocrats of the medical fraternity, taking upon themselves almost divine prerogatives. She answered her own question as to smallpox being a filth disease and cleanliness being the preventive, in the affirmative, and asserted that the claims of those believing in vaccination are not proven. She predicted a tremendous riot in opposition to the claims of physicians and urged the development of public opinion, especially through addresses to women and members of the Legislatures before election.

In introducing Mr. William Lloyd Garrison, the chairman referred to the name of an ancestor of the speaker foremost among those working for liberty in Massachusetts. Mr. Garrison, referring to the layman, believes that he creates most of the children, foots most of the bills and furnishes most of the thinking. He referred to the statement of Bernard Shaw to the effect that when the doctor learns that he gets ahead of the superstitions of his patients he is a ruined man, and as a result of the conference of quacks the doctors "opened their mouths" to the value of fresh air, water, hygiene and temperance. In support of his views he also quoted Alfred Russell Wallace and others.

He claimed that the belief in bacteria and the theory of immunity is limited only by the capacity of the medical mind to be deluded. Quoting others, he reasoned that fear is the chief etiological factor in the cure of disease, and immunization is a greater disease producer than breaking the laws of health. He encouraged his hearers with his belief that we are facing a better day because of the evolution of ideas on the side of the anti-vaccinationists, and claimed as a fact that men of this kind recognize the truth that ultimate control must be spiritual and not material.

He found comfort in the belief that bacteriology is being challenged by biology, biochemistry, sociology, *et cetera*, and felt that the healing by the Great Physician was by bringing peace within. He characterized compulsory vaccination as another medical tyranny built upon the outworn eighteenth century superstition.

The chairman put in a word for the *Christian Science Monitor*, which he believes stands for all that is lasting and of real benefit to mankind, and introduced its editor, Mr. Willis J. Abbott, who believed that the merits of vaccination are based on the fact that behind it there is a material or financial interest, and stressed the idea that the people should withdraw from health boards this power to violate our personal freedom.

Judge Clifford P. Smith was the last speaker who argued for individual freedom. He said that if vaccination is as valuable as claimed there is no need of compulsion, but that the real arguments in its favor are based on fear plus a combination of ulterior motives.

Dr. Padelford presented the following resolutions, which were adopted:

RESOLUTIONS

Whereas, The Director of the Division of Laboratories of the Massachusetts Department of Health has officially stated in the official organ of the said Department (*The Commonhealth*, Vol. 10, No. 2, page 36) that the so-called "vaccine virus" cultivated at and distributed by the State Vaccine and Antitoxin Laboratory, is produced "by inoculating a susceptible animal, such as the calf, with infectious material containing the unknown virus of smallpox, obtained from a human smallpox pustule, and then successively inoculating a series of calves with the eruption developing on the skin of the preceding animal," and

Whereas, The use of non-sterilized human smallpox matter in the attempt to immunize human beings against smallpox was universally condemned a hundred years ago by all vaccinationists as being dangerous, and about 1840 was made a penal offense by the British Parliament and by the legislatures of several of our own States, at the urgent request of the advocates of vaccination, and

Whereas, Vaccination when first introduced won public toleration and acceptance, largely upon the solemn assurance that it was a safe and efficient substitute for smallpox inoculation, technically known as variolation, which was credited by the friends of vaccination with the alarming spread of smallpox which had theretofore obtained, and

Whereas, The use of non-sterilized virus of human smallpox origin, though labeled "vaccine," cannot constitute compliance in good faith with our state laws relating to vaccination, which were all enacted at a time when cowpox matter was the recognized basis of vaccination, and

Whereas, The Massachusetts Department of Health has, without any change in the laws warranting such action, shifted from the production and distribution of vaccine of supposed cowpox origin to so-called "vaccine" of known human smallpox origin, and

Whereas, Such substitution constitutes a menace to the public health, and a breach of good faith on the part of the State Department of Health in dealing with the public, and

Whereas, None of the available strains of "vaccine virus," so called, can be satisfactorily

authenticated as having been originally obtained from that variety of cowpox which Jenner declared was the only one capable of establishing immunity against smallpox, Be it therefore

Resolved, That the citizens of Massachusetts, here assembled in Symphony Hall, Boston, on the evening of this second day of November, A.D. 1923, do hereby brand as spurious and essentially illegal, vaccination as now practiced, and demand that the General Court at its next sitting repeal every law on our statute books relating in any way to "vaccination," and that there be enacted a law prohibiting the manufacture, distribution and use, within the Commonwealth of Massachusetts, of any so-called "vaccine virus," under any name or label, which is of human smallpox origin or which is in any way traceable to human smallpox, whether cultivated through calves or any other animals, and Be it further

Resolved, That copies of these resolutions be sent to His Excellency, the Governor; to members of the Senate and House of Representatives; to the Mayors of all Massachusetts cities; to the Selectmen of all Massachusetts towns and to the School Boards and School Committees throughout the State.

There were about a thousand persons in attendance and $4450 was contributed. We are publishing this report not because it reveals any new arguments but because new generations are coming into the field of human activities, and thinking men and women will be called upon to judge for themselves of the relative claims of those who are on opposite sides of the questions involved.

The pleas for personal liberty are attractive to many minds, and the destructive criticism of enthusiastic opponents of any regulation which is obnoxious will win some support.

It must be recognized that an organization which can secure the attendance of a thousand people and contributions of large sums of money has power. The verdict presented by the opponents of vaccination is not in accordance with the weight of evidence which is available to all who may study this subject. We contend that smallpox is not a filth disease *per se*, although it is reasonable to suppose that a person weakened by unhygienic surroundings or methods of living may have lowered vitality and lessened powers of resistance. It is common knowledge that exposure of normal persons, unprotected by vaccination, to smallpox will result in a large percentage of cases of the disease among such people, and, conversely, very few persons who have had smallpox or been successfully vaccinated twice will contract the disease. Although the living organism of smallpox has not been isolated, vaccination is effective as a preventive measure in much the same degree as antityphoid treatment. Modern science has demonstrated the cause of syphilis, but mercury and arsenic were known to have great value in treating this disease before full understanding had been acquired. The same was true of malaria and quinine. The argument against vaccination based on belief in personal liberty is illogical, for the law recognizes that the principle of the greatest good to the greatest number warrants public control of property and even of the individual person. Only a comparatively few persons would deny the right of the Government to draft men, and if necessary send them to their death in order to protect the larger community. We do not even own our own bodies under some circumstances, certainly not when ownership involves danger to the State. Quarantine imposes control on the individual when necessary and subjects him to deprivation of liberty.

In short, liberty does not mean license, and the individual, if he elects to live in a community, ought to expect to meet the demands of community life, which theoretically never permit one person to make himself a menace to others. It is an extremely narrow view of life that would establish the principle that the individual has any superlative right.

Any question which meets with divergent opinions of large numbers of persons is important, and the honest convictions of the opposing groups should be carefully studied. Conflict seems to be an unavoidable feature of life. So far as we are honest, indefatigable in our study and possessed of minds open to evidence we shall make progress.

We ask the people to read the article published in this JOURNAL April 12, 1923, by Benjamin White, Ph.D., and, if further evidence is needed, to appeal to the United States Public Health Service at Washington for information relating to vaccination.

Miscellany

HABIT CLINICS

THE Habit Clinics for children of the preschool age are being conducted by the Community Health Association and the Division of Mental Hygiene, under the Department of Mental Diseases.

The functions of the Habit Clinics are to study and to treat undesirable habits in children. These clinics are always a part of some well-recognized health unit and not an isolated group of psychiatrists, psychologists, and social workers operating independently.

The following group of undesirable habits and personality defects gives, in a general way, the

type of case best suited for treatment at the clinics:

HABIT CLINIC

SYMPTOMS

A. *Disturbances of Sleep.*
- Dreams—frequency, vividness, repetition, affectivity.
- Nightmares.
- Restlessness—motor, mental.

B. *Elimination.*
- Urination.
- Defecation.
- Drooling.
- Spitting.

C. *Habits Relation to Food.*
- Perverted tastes.
- Vomiting—persistent or spasmodic.
- Regurgitation.
- Refusal.
- Demands to be fed.
- Finicky regarding food.

D. *Sex Knowledge (Interest).*
- Abnormal reactions (quality and quantity).
- Masturbation—imitative, trained, accidental.
- Toilet interest.
- Exhibitionism.
- Pleasurable sensory reactions.
- Excessive sensitiveness about matters pertaining to sex.
- Thumb-sucking (complicated).
- Anal and genital irritations.

E. *Asocial.*
- Truancy (from home or school).
- Lying—purposive, fantastic, jocular.
- Stealing—value, from whom, motive.
- Firesetting.
- Destructiveness—amount, value.
- Sex assaults.

F. *Convulsions.*
- Tics (voluntary, involuntary).
- Chorea.
- Respiratory.
- Stammering.
- Baby talk—mispronunciation.
- Hysterical manifestations.
- Mannerisms.
- Fainting spells.
- Momentary losses of consciousness.
- Hyperactivity.

G. *Personality Traits.*
- Shyness.
- Negativism.
- Lack of confidence.
- Selfishness.
- Jealousy.
- Pugnacity.
- Tempers.
- Fearfulness.
- Hatred.
- Unusual attachments.
- Self-assertiveness.
- Day-dreaming.
- Cruelty.
- Demand for attention.
- Domineering.
- Self-centeredness.
- Stubbornness.

H. *Mental Manifestations.*
- Phobias.
- Apathetic.
- Depressions.
- Paranoid tendencies.
- Elation.
- Hyponogogic hallucinations.
- Intraversion.

I. *Intelligence Status.*
- School progress.
- General knowledge.
- Ability at play.
- Rapidity at learning.
- Retention.

The clinics have been organized throughout the State in an effort to render service in a convenient way to the immediate community. The following is a list of the Habit Clinics operating in Boston, their location, and hours at which they are held:

CLINICS UNDER THE COMMUNITY HEALTH ASSOCIATION

South Bay Union, 640 Harrison Avenue, Tuesday morning, 9.30-12.
Community Health Conference House, 1049 Columbus Avenue, Roxbury Crossing, Friday morning, 9.30-12.
Community Health Conference House, 748 Dudley Street, Uphams Corner, Tuesday afternoon, 2.30-5.

CLINICS UNDER THE DIVISION OF MENTAL HYGIENE, DEPARTMENT OF MENTAL DISEASES

Maverick Dispensary, 18 Chelsea Street, East Boston, Wednesday afternoon, 2.30-5.
Community Health Conference House, 32 Parmenter Street, North End, Friday afternoon, 2.30-5.
Roxbury Neighborhood House, 858 Albany Street, Roxbury, Thursday afternoon, 2.30-5.

TUBERCULOSIS CLINICS AT BOSTON HEALTH SHOW

AT the Boston Health Show the Tuberculosis Committee effected a bit of coöperative work that is novel in that the different agencies acted together for the benefit of the whole, sinking individual claims for credit. The chairman of the Tuberculosis Committee was Miss Bernice W. Billings, executive secretary of the Boston Tuberculosis Association; the general exhibit was directed by Murray P. Horwood, Ph.D., of the Massachusetts Institute of Technology; the clinics were managed by Dr. Sumner H. Remick of the State Department of Public Health and Dr. Cleaveland Floyd, director of clinics of Boston Sanatorium, Out-Patient Department; while the fortune telling section, in which the weighing and measuring was done, was under the care of Miss M. Alice Gallagher, executive secretary of the Norfolk County Public Health Association. The Massachusetts Tuberculosis League, Occupational Section of the Boston Sanatorium, Out-Patient Department, Channing Home, and other agencies lent their assistance in administrative work, while other associations, more of the social order, furnished attendants, ushers, etc.

The tuberculosis exhibit was in two parts. On the first floor of Exhibition Hall, Mechanics Building, a booth ten feet by twelve was crowded with the educational material assembled. This

included a model of Prendergast Preventorium, which was made by the boys of the Mechanic Arts High School, the stock for the little building being a gift from an interested dealer in beaver board. The Healthland Flier, with its prismatic shades racing one with another over the landscape, was of great interest to children, while dolls, dressed by the girls at the Florence Crittenton Home, represented the various chores engaged in by Modern Health Crusaders.

The attendants at the booth were volunteers from the Boston Tuberculosis Association Auxiliary and the ushers were from the different Lend-a-Hand clubs. They were under the direction of Miss Annie E. Brown, secretary of the Lend-a-Hand Society.

The whole of the large hall on the second floor back of Paul Revere Hall in Mechanics Building was utilized by the Tuberculosis Committee for clinics, fortune telling, display of posters and lantern shows. The Channing Home had here a room which was a model sleeping room. When it was discovered that the physicians were finding in their clinics persons who needed follow-up work, a social worker was installed here, who gave good advice to many needing it before they went to their homes. At the fortune teller's booth some 1400 persons were weighed and measured during the week of the show. Each one was given a card with the figures, children were given a card for their parents to see, while school children had a card for the information of the teacher. Persons were referred to the cardiac clinic if conditions seemed to suggest it, while underweights were conducted to the tuberculosis clinics close at hand.

For the lung clinics six examining booths were provided with two dressing booths and a special room for taking histories. The physicians and nurses gave their services during the clinics, of which there were three a day. There were eight doctors and twenty-four nurses in relays every day. The examinations included 510 persons, with results given later. The Kelly-Keott Company provided a fluoroscope, which was used by the examining physicians.

In addition to the clinics, there was the chest expansion and posture contest. A spirometer was provided by the Sanborn Company. More than 200 persons entered in this contest, many others trying the tests but not entering. Prizes of four ten-dollar gold pieces were awarded the winners.

The partitions of the waiting room were hung with many health posters, collected by Miss Anna M. Johnson, of the Massachusetts Tuberculosis League, with showings by the Cambridge Anti-Tuberculosis Association, Malden Health Camp, Wellesley School Department, and other groups. During exhibition hours the lantern of the Boston Association was used for projecting on the wall of the waiting room health maxims, scenery, "silent health lectures," etc., the operators being volunteers assembled by Miss Minnie E. Noyes of the Woman's City Club.

The general findings of the lung clinics are these:

With pulmonary tuberculosis	25
With cervical adenitic tuberculosis	1
Suspicious cases—Tuberculosis	37
Chest and gland diseases for follow-up	57
Without tuberculosis but with other diseases	95
Negative—no complications	295
	510

Some analyses of the cases and of other matters are of interest.

Of the pulmonary cases (25) there were:

Incipient	7
Moderately advanced	5
Advanced	0
Not stated	13

and there were:

Active	5
? Active	1
Inactive	11
Not stated	8

In the entire group of positive cases (26) the age distribution was:

Under 20	20–30	30–40	40–50	50–60	60–70
1	6	7	8	2	2

The negative cases with diagnoses of other diseases were:

Tonsillitis	20	Epilepsy	1
Heart disease	15	Urethritis	1
Obesity	2	Bursitis	1
Underweight	6	Rheumatism	3
Acne	1	Appendicitis	1
Hay Fever (?)	1	Mental (?)	1
Constipation	8	Nasal obstruction	1
Carious teeth	10	Dermatitis	1
Neurasthenia	4	Nasal catarrh	1
Chronic enteritis	1	Chronic conjunctivitis	1
Arthritis	2	Cystitis	1
Eczema	1	Referred to family physician—no diagnosis	5
Laryngitis	1		
Chronic pharyngitis	2		
Acute pharyngitis	1		
Arteriosclerosis	1		
Neuritis	1		
			95

The cost of the exhibits and clinics were borne by the Boston Tuberculosis Association, amounting to $506, which is considered a modest sum to expend for the discovery of 26 positive cases. It is interesting to note that about one-third of the positives were attracted to the clinics by notices in the newspapers, while quite a number were referred by the large department stores of the city. Altogether, more than 2000 persons had health examination by members of the volunteer staff that the Tuberculosis Committee of the Boston Health Show had brought together.

MEDICAL PUBLICITY. A REQUEST FOR COÖPERATION FROM THE CHAIRMAN OF THE COMMITTEE

THE council of the Massachusetts Medical Society at its last meeting appointed a committee to investigate the feasibility of establishing a standing committee to act as liaison officers between the Society and the public. This committee is most anxious to receive suggestions as to what the Society wishes in this matter. Several of the state medical societies have recently taken action on this subject. In one State a brief survey was made which showed that of the nearly seven thousand people interrogated only six per cent. were fully content to follow the medical profession in health matters. Another seven per cent. have been faithful so far, but are now tempted to investigate some of the cults owing to their persistent propaganda. Many who have tried the cults have done so from curiosity rather than dissatisfaction with our services, while a large number went to the cults because of a lack of understanding of our efforts and aims. Any sane business man who had invested several thousand dollars and years of time preparing for business and then saw the business persistently going to one far less well prepared, surely would make a very strenuous effort to acquaint the public with his side of the case. It has been said "Most subjects have two sides, but the desirability of truth-telling is quite generally admitted to be an exception." Truth often lacks initiative and needs help in reaching those most concerned in being acquainted with it.

Preventive medicine is as old as history, yet probably more has been learned about it during the past fifty years than during the previous centuries. We have been so busy assimilating this knowledge that we have perhaps failed to pass along to the public a fair portion in a form that would appeal to them. Many people say the physicians are entirely negative, always telling them what not to do, and when they condescend to answer questions they do in such a complicated way they but confuse the listener. The day of complicated Latin prescriptions and god-like faith in the physician is long past, yet what have we given the public in exchange?

We must always remember there is some glass in our houses and much of this should be removed, that we may be in a better position to handle the pebbles. Far too often when one asks us for a physical examination when he is feeling quite fit or when he asks for help for some symptom we feel sure is of no appreciable importance, we are apt to tell him to forget it and not worry until he has something worth worrying about. On all sides we are told how thoroughly the cultist is trained in business methods and advertising. They never fail to do something concrete for those who apply for help. Whatever the quality of the examination, whatever the value of the diagnosis, however unwise the treatment, the patient is pleased, for something concrete has been done and his complaint, which to him at least is very real, has been considered seriously. There are times when manipulation of tight muscles makes one feel much more at ease, so also there are times when a tranquil mind is of great value; so we really have no quarrel with the method of treatment many of them use provided they are sufficiently well trained to make a correct diagnosis and use fair judgment in determining the form of treatment best suited to the individual patient. A broader view here would save us from the accusation of narrowness and unfairness toward our competitors. Many of the public accuse us of criticising without investigation.

It is far too easy to fool part of the public, but never has it been possible to fool a large majority of the public for very long. They are always willing and anxious to learn, and if we furnish them authoritative information in a form that will catch and hold their attention it will be easy to inaugurate all the best methods of preventive medicine. The large majority of the legislators are anxious to vote for any legislation the majority of their constituents wish to have enacted, so if we convince the public that a measure is for their benefit there will be little difficulty in having it enacted. If that were all it would not be so difficult, but the real job is to teach the public to make the best use of the legislation already enacted. Even that is not impossible, but calls for concentrated, well directed efforts on our part.

The anti-vaccination organization, as an example, carries on extensive propaganda throughout the year, and at the proper time employs skilled full-time lobbyists, endeavoring to teach their side of the question to the public and the legislators, while we allow the truth to remain hidden from the public, unless they take the trouble to hunt it out from our special literature.

Surely there is no more interesting or inspiring story than the history of the development of medicine as a whole and in its many branches, but we have far too carefully guarded this story. Some muck-raker publishes in a sensational magazine "An Exposé of the Medical Profession," and of course ignores all that grand achievement while he plays up to the utmost all of our weaknesses. Would it not be quite fair for us to publish the truth, acknowledging our weaknesses and placing against these a fair "Exposé of the Achievements of the Medical Profession, Especially During the Past Few Years"? Certainly we have no desire to start any debate on the subject, but a dignified statement of the truth might convince the public that we as a profession are not entirely neg-

ative, do not harshly criticize methods we know little or nothing about, do not consider ourselves less fallible than our brethren, are not always quarreling among ourselves, or hiding and protecting those among us who have proven themselves incompetent, but that we have done and are continually doing a vast amount of unselfish labor for the good of the public health, are freely and gladly publishing to the world the results of our investigations, and in all ways in our power trying to prevent as well as relieve suffering.

Change seems to be the watchword. Call it advance or the reverse, as you will, but change there certainly has been,—in thought, in ways of living, in methods of doing business, and in our attitude toward life generally; and the Massachusetts Medical Society cannot stand still, we must move on with the progressive changes or slip into oblivion. Conceding we are agreed in wishing to progress, how are we to go about it? Much better to go very slowly and do it in the best manner. Just what is the most advantageous manner of preparing the soil for the large crop we hope to harvest before the frosts of an incorrectly taught public opinion nip us? In the study of this subject your committee earnestly desires suggestion from every member of the Society, and will welcome assistance from anyone interested. Please make your suggestions to any member of the committee or to THE JOURNAL. Many suggestions made promptly will help most.

A. P. MERRILL, Pittsfield, Mass.

MASSACHUSETTS CLINICAL AND SURGICAL ASSOCIATION

THE Massachusetts Clinical and Surgical Association visited Fall River on November 14 as guests of Drs. Truesdale, French, Barnes and their associates. The program at the hospital and clinic during the day was as follows:

MORNING PROGRAM—OPERATIVE CLINIC

Dr. R. W. French.—Appendectomy for Chronic Appendicitis. Herniotomy for Inguinal Hernia. Round Ligament Suspensions for Retroversion of the Uterus.

Dr. P. E. Truesdale.—Persisting Uterine Hemorrhage. Hysterotomy? Myomectomy? Incarcerated Pelvic Tumor (Uterine Fibroid) Complicating Pregnancy; Hysterectomy. Cancer at the Pylorus; Pylorectomy. Gastric Ulcer with Hour-Glass Stomach. Prostatectomy for Obstructing Prostate.

AFTERNOON PROGRAM—DRY CLINIC

Uremia from Bilateral Nephrolithiasis. Report of Two Cases from Medical, Roentgenological, Urological, and Surgical Standpoint. Drs. Mason, Lindsey, Merritt, and Truesdale. Result following right parietal decompression for increased intracranial pressure. Foreign body (false teeth) in oesophagus. Result following oesophagotomy. Dr. P. E. Truesdale.

Diabetes and Surgery. Demonstration and report of cases with special references to insulin treatment. Drs. R. W. French and William Mason.

End-Results after Operation for Carcinoma of the Breast. Dr. Elmer T. Learned.

A Case of Progeria. Dr. W. J. Brennan.

Demonstration of X-Ray Films. Dr. Lindsey.

Tuberculous Mastoid Abscess. Dr. D. R. Ryder.

X-ray as an Aid to Diagnosis in Multiple Pregnancy. Dr. W. G. Atwood.

Fracture of Both Bones of Right Leg. Dr. C. C. McCreery.

Carcinoma of Fallopian Tube. Cancer of Cecum and other Pathological Specimens. Dr. A. C. Macrae.

Raynaud's Disease. Dr. F. R. Barnes.

Granuloma of Root of Tooth following Abscess. Dr. W. W. Marvell.

THE MEDICAL SERVICE AT THE HUNTINGTON HOSPITAL

THE Collis P. Huntington Memorial Hospital (the hospital of the Cancer Commission of Harvard University) was opened with Dr. Robert B. Greenough, as Director, in 1912, for the care of cases of malignant disease and for the purpose of advancing the knowledge of cancer and allied conditions. Since then an ever-increasing number of patients have been admitted and benefited. The investigations have progressively increased, aided materially by the opening of the new wing of the building about two years ago. The most recent development is the expansion of the medical service by enlargement of the staff and by the establishment of a laboratory for clinical investigation. Leukemia, diseases of the lymphatic tissue and of the hemopoietic organs, also an increasing number of cases suggesting malignancy of any type, are studied for diagnosis and suitable treatment given. A clinic for children is one of the new departures.

Cases may be referred for study, for diagnosis or for treatment, at any time, but are seen preferably by appointment on Monday and Thursday afternoons, and Wednesday and Friday mornings. The clinic for children is held Tuesday and Friday mornings.

Clinical investigation and teaching form an important part of the work of the staff.

The staff is as follows:

Physician and Chief of the Medical Laboratories, George R. Minot.

Assistant Physician in charge of Pediatrics, Thomas E. Buckman.

Assistant Physician, Raphael Isaacs.

Resident Physician, D. R. Higbee.

Assistant in Medicine for Investigation, James Hitchcock, H. E. Pearse.

Assistants, Florence Daland, Margaret Weld.

MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

Résumé of Communicable Diseases
October, 1923

GENERAL PREVALENCE

The prevalent diseases showing an increase over last month were as follows:

	October 1923	Sept. 1923	October 1922
Chicken-pox	561	137	1,021
Measles	660	161	686
Mumps	253	108	188
Pneumonia, lobar	197	110	236
Scarlet fever	677	312	554
Tuberculosis, pulmonary	536	448	403

RARE DISEASES

Actinomycosis was reported from Boston, 1.

Anterior poliomyelitis was reported from Boston, 11; Cambridge, 2; Chelsea, 1; Everett, 1; Fall River, 1; Haverhill, 2; Lowell, 10; Ludlow, 1; Medford, 1; Newton, 4; North Adams, 2; Quincy, 1; Revere, 1; Sandwich, 1; Springfield, 4; Templeton, 1; Westfield, 2; West Springfield, 2; total, 48.

Anthrax was reported from Lynn, 1; Salem, 1; total, 2.

Dog-bite requiring anti-rabic treatment was reported from Boston, 3; Lowell, 16; Winthrop, 1; total, 20.

Encephalitis lethargica was reported from Boston, 2; Cambridge, 1; Concord, 1; Lynn, 1; Marlboro, 1; Millbury, 1; Pittsfield, 1; Springfield, 1; total, 9.

Epidemic cerebrospinal meningitis was reported from Boston, 5; Concord, 1; Fall River, 2; Hatfield, 1; Holyoke, 1; Lowell, 2; Milton, 1; total, 13.

Malaria was reported from Haverhill, 1; Norwood, 1; total, 2.

Septic sore throat was reported from Belmont, 1; Boston, 9; Holyoke, 1; Lawrence, 3; Lowell, 1; Somerville, 1; Williamsburg, 1; total, 17.

Tetanus was reported from Lowell, 1; Watertown, 1; total, 2.

Trachoma was reported from Attleboro, 1; Boston, 2; Lowell, 2; total, 5.

DR. BERNARD C. CAREY ACCEPTS NEW POSITION

Dr. Bernard C. Carey, Director of the Division of Communicable Diseases of the Massachusetts Department of Public Health, has resigned his post to accept a position with the American Child Health Association as Director of the Athens, Georgia, Child Health Demonstration. This appointment for a five-year term is under the auspices of the Association, and is financed by a grant of $600,000 by the Commonwealth of Georgia.

Dr. Carey's many friends will wish him continued success in this new work.

WACHUSETT MEDICAL IMPROVEMENT SOCIETY

The Wachusett Medical Improvement Society held its regular meeting at Dr. Lewis' Sanatorium in Princeton, November 7. The following papers were read:

"Acute Abdominal Emergencies: Report of Illustrative Cases." Dr. Walter C. Seelye, Worcester.

"Stealing the Prostate." Dr. Frank H. Washburn, Holden.

There were several new admissions to membership. Dinner was served.

FRANKLIN DISTRICT MEDICAL SOCIETY

The Franklin District Medical Society held the November meeting at the Weldon in Greenfield, Tuesday, November 13, at 11 a.m. Program: "What Are the Duties of the Public Health Nurse?" General introduction: What is a Public Health Nurse? Anna Koch, Greenfield; Industrial Nursing, Josephine Leonard, Greenfield; School Nursing, Florence Simpson, Deerfield; Rural Nursing, Ruth Upton, Orange; County Nursing, Elsie Smith, Greenfield. Miss Sally Johnson was also present.

REPORT OF THE DORMITORY COMMITTEE

The report of the Harvard Medical School Dormitory Fund shows that up to November 14 a total of $76,729.11 has been subscribed, with $48,349.36 paid in. These figures are being augmented daily.

HARVARD MEDICAL SOCIETY

The Harvard Medical Society held a meeting in the Peter Bent Brigham Hospital Amphi-

theatre, Tuesday evening, November 20, at 8.15 o'clock. Program:

1. The Octocentenary of St. Bartholomew's Hospital, by Dr. W. C. Quinby.
2. Medical Experiences in India, by Dr. F. H. Colby.

HARVEY CUSHING, *President;*
GILBERT HORRAX, *Secretary.*

SPRINGFIELD ACADEMY OF MEDICINE

THE regular meeting of the Springfield Academy of Medicine was held Tuesday, November 13.

Dr. Frederick Jones presented an unusual case of a bullet injury.

Dr. Max Einchorn of New York City read the paper of the evening on "The Importance of Duodenal Tubes in Treatment of Duodenal Ulcer," with lantern slide demonstrations.

Dr. R. B. Ober opened the discussion.

BEVERLY HOSPITAL

A demonstration clinical meeting was held at the Beverly Hospital, Tuesday, November 20, at 4 p. m. Interesting cases were shown and discussions followed.

JAMES A. SHATSWELL, M.D., *President;*
RALPH E. STONE, M.D., *Secretary.*

News Items

BOSTON SURGEONS READ PAPERS BEFORE THE NEW YORK ACADEMY OF MEDICINE.—At the November 16th meeting of the New York Academy of Medicine Dr. W. R. MacAuslan read a paper entitled "Arthroplasties of the Knee," and Dr. A. L. Chute a paper on "The Use of Spinal Anesthesia in Urinary Surgery."

WEEK'S DEATH RATE IN BOSTON.—During the week ending November 10, 1923, the number of deaths reported was 173, against 221 last year, with a rate of 11.71. There were 18 deaths under one year of age, against 32 last year.

The number of cases of principal reportable diseases were: Diphtheria, 74; scarlet fever, 64; measles, 39; whooping cough, 7; typhoid fever, 1; tuberculosis, 37.

Included in the above, were the following cases of non-residents: Diphtheria, 6; scarlet fever, 6; tuberculosis, 2.

Total deaths from these diseases were: Diphtheria, 4; typhoid fever, 1; tuberculosis, 13.

Included in the above was the following case of a non-resident: Diphtheria, 1.

Obituary

ALBERT J. A. HAMILTON, M.D.

DR. ALBERT J. A. HAMILTON of Boston, a skilled surgeon, died at home, in his sleep, in the early morning of November 7, 1923, at the age of forty-four. He was born in Sawyerville, Province of Quebec, one of the fourteen children of John and Martha Adams Hamilton. Leaving home when he was sixteen, he was able, at nineteen, to enter upon his preparatory studies at Montpelier Seminary, where he was a leader among his fellows, and the captain of their football team; and at the end of two years he was graduated with honors. The following two years he spent at the University of Vermont. After two more years at Brown University, where he was a member of the varsity football team, he began his medical course at the University of Pennsylvania, and was graduated in 1906. He then served a year as surgical interne in the Altoona Hospital, Pennsylvania. In 1907 he became surgical interne at the Carney Hospital, South Boston, and was later appointed resident surgeon, which position he held until 1910. While there he had the great privilege of daily association, as assistant, with Dr. John C. Munro, from whom he received most valuable instruction and inspiration. With this fine surgical training, especially in abdominal surgery, he began practice in Boston, where he continued until his death.

Doctor Hamilton was a superior surgeon. He knew his anatomy well, so avoided mistakes. While operating he did not rush, but, knowing what next to do, wasted no time. His handling of the viscera was delicate and caused little trauma. Also his skill was proved, in difficult major abdominal operations, by the high percentage of recoveries of patients who were not all good surgical risks.

One of his finest qualities was kindness to the old and needy, and he was much liked by all his patients. To his constant professional associates, he sometimes seemed over-blunt, or unappreciative; but this was due, no doubt, to his undemonstrative nature, and his hard experiences in the world where so often he had worked against great odds. His sincere friends, however, included all those who knew him longest and best. He faithfully upheld the ethics of his profession, and interest in his work claimed him first; but he liked companionship, and was a member of the various orders of Masons and many clubs, including the Algonquin Club, Belmont Spring Country Club, Boston Athletic Association, and Tedesco Country Club. Best of all, he loved the outdoors,—the woods and the streams.

He is survived by five brothers and five sisters, and leaves many sorrowing friends.

Correspondence

Geneva, September 10, 1923.

Mr. Editor:

While perusing Dr. Berman's book, "The Glands Regulating Personality," a very good case in point came to my mind. The patient in question was followed by Professor Claude, of Paris, and this is what I was told at the time: A joyous male, perfect in bodily proportions, had during part of his existence been guilty of the worst misdeeds—a vagabond and thief—which resulted in numerous sojourns in prison.

Following an accident a testicle was removed; genital activity continued but nevertheless this rascal appeared to mend his ways. A few years later the second testicle had to be removed, but a bit of the gland the size of a hazel nut was left, although the vas deferens was resected. Following this, the man changed completely, but not morphologically. The secondary sexual characters remained intact. The penis, although inactive, remained well developed and there was no change in the voice or pilous system. From the moral viewpoint he became hard working and economical with a quiet disposition, never angry, and he developed such an inclination for family life that in spite of his infirmity he married and lived happily with his spouse, and this according to her own statement.

In spite of great flattery heaped upon him, the famous Dr. Tronchin seems to have resisted it. Tronchin was a typical Genevois, and the general irreligion of his time had no effect upon him. Even the sarcastic smiles of his client, Voltaire, he ignored and during his long life he enjoyed the public favor.

Tronchin's relations with Voltaire reveal his uncompromising severity. During weeks, or even years, he would break off all relationship with the lord of Fernay, who then would make useless attempts to bring him back.

After he left the Prussian court Voltaire came to Geneva, merely because he did not know where else to go and the pretext of consulting Tronchin seemed to him quite good enough. This everlasting invalid said of physicians that he only saw them for the pleasure of conversing with them when they were possessed of wit and intellect, just as he received theologians, *without believing either.*

In reality, Voltaire was less in need of a physician than for a person with influence in Geneva and esteemed at the French Court, and in Tronchin he found these attributions. He heaped attentions upon Tronchin which, for one who all his life regarded himself as a sick man, was a pleasing task. Thus, hardly had he reached the Délices, he wrote to Robert Tronchin, his banker at Lyons, to send him "a large rhubarb root, sufficient to purge a province." And again: "All your parcels have been approved, excepting that (containing) rhubarb. Your cousin, the doctor, has such preference for cassia, that there is no way of speaking about rhubarb in his presence."

Thus cassia became the order of the day. Voltaire writes: "Procure twenty pounds of cassia for me for this winter; this is not too much as it keeps well in the cellar and opens the bowels of all who approach it—liquors are for my guests, aubusson carpets may please Madame Denis, but for myself I must have more cassia than the *malade imaginaire.*" But he changes his tune when facing his physician. "Happy mortals those whose entrails are supple, lubricated, surrounded with soft fat, which makes (their) activity easy. Unfortunate mortals those whose entrails are dry, hard, *siccitas viscerum nulla arte curari potest.* My pathology being thus, my prognosis is that there is not much time left to suffer on this globule. My opinion is that one should try to suffer the least possible and eat the softest food in small amounts. This is what I do, trying to overcome the infamous passion of gluttony. If you have a better secret than this, tell me it, because we should help each other."

Faced with his physician's energetic attitude, who threatened him with a relapse, Voltaire declared that forever after he would pass his life in quiet retreat in a dressing-gown. But these fine resolutions quickly evaporated, the unruly old man being untiring. Next, Voltaire wishes Tronchin to treat the members of his family, and writes to his niece to that effect.

Voltaire had other good reasons besides his health to be in Tronchin's good graces. The latter's great reputation drew to Geneva a continual flow of patients with real or imaginary ills, almost exclusively belonging to the French aristocracy, and it was Voltaire who received this numerous and brilliant society. Therefore he proclaimed the glory of his Esculapius to the world, unceasingly advising his friends and powerful protectors to seek Tronchin's opinion. Geneva was filled with patients until the day of Tronchin's departure for Paris.

It would seem that Tronchin was destined to maintain illustrious and difficult relations. Voltaire caused the very greatest vexations from the abominable sly tricks he played on him with the Geneva Consistory and Rousseau, with whom he had become very friendly. But in spite of all this Tronchin was kind to Jean-Jacques in many ways, finding him situations at Geneva. However, nothing could ever unite in friendship these two men, and Rousseau's ingratitude ended by Tronchin wearying in his devotion to him. He suspected that he had been betrayed to Madame d'Epinay. Others would have it that Tronchin made a very magnificent man of Monsieur d'Epinay, but this gossip is none of our business since the story is ancient history and the lady would appear to have been exceeding pretty.

However this may be, Tronchin had a true compassion for Rousseau, and in proof of this is the grief he experienced from the latter's bad behavior towards him.

In my remarks on books I have so far refrained from mentioning the "Nouveau Traité de Médecine," which will be complete in 22 volumes, but since the first 10 have now been issued from the press (Masson et Cie., publishers) it would seem à propos to call your attention to this unquestionably encyclopaedic work. The names of the three distinguished editors —Professors G. H. Roger, F. Widal and P. J. Teissier—would seem to be enough to guarantee the high excellence of the volumes. The ten volumes which have now appeared treat the infectious diseases, parasitic processes, and cancer (Vols. I, II, III, IV, and V), intoxications (Vol. VI), avitaminoses and nutritional disturbances (Vol. VII), pathology of the respiratory system (Vol. XII), pathology of the digestive tract (Vol. XIII), and the diseases of the salivary glands, pancreas and peritoneum (Vol. XV).

The remaining volumes are in press or in preparation, and I shall mention the progress made in future correspondence. As a tip I might say that with the present very low rate of exchange, those who may desire to purchase the volumes that have so far appeared will obtain them at a derisory price. An interesting item that, perhaps, you may not realize is that the French publishers sell their books in French francs, while the Germans issue theirs on the dollar basis and at the same time have increased their prices, so that their books are now more expensive than the pre-war rates.

The annual meeting of the Swiss Society of the History of Medicine was held at Zermatt from August 30 to September 1. The following papers were read:

Prof. Senn (Bâle): Das pharmazeutische-botanische Buch in Theophrasts Uflanzenkunde.

Dr. Wehrli (Zurich): Uber die Notwendigkeit einer historischen Betrachtung der Volksmedizin.

Dr. Guisan (Lausanne): Une consultation écrite

des Drs. Thiéry (de Paris) et Tronchin (de Genève) pour un cas de squirrhe du pylores.

Dr. Klebs (Nyon): Bibliographische Demonstration.

Dr. Morgenthaler (Münchenbuchsee): Eine Hysterica in Beginn des 17 Jahrhunderts.

Prof. Cumston (Geneva): Contribution à l'histoire de l'inoculation.

Dr. Lendi (Chur): Der Einfluss J. J. Rousseaus auf die Hygiene des Kindes.

Prof. Sigerist (Zurich): Der anatomische Gedanke in der Medizin.

This was the second annual meeting of the Society, which was founded two years ago, so that from the program you will see that this new aspirant to fame is certainly starting well.

Very truly yours,

CHARLES GREENE CUMSTON.

Lecturer in the University of Geneva.

NOTICES

MIDDLESEX EAST DISTRICT MEDICAL SOCIETY

The next meeting of the Middlesex East District Medical Society will be held at the Harvard Club on Wednesday, November 28, 1923. Dinner will be served at 6.30 sharp. The speaker of the evening will be Dr. F. Gorham Brigham; the subject, "The Insulin Treatment of Diabetes."

ALLAN R. CUNNINGHAM, *Secretary.*

DISEASES REPORTED TO MASSACHUSETTS DEPARTMENT OF PUBLIC HEALTH

WEEK ENDING NOVEMBER 10, 1923

Disease	*No. Cases*	*Disease*	*No. Cases*
Anterior poliomyelitis	7	Pneumonia, lobar	51
Chicken-pox	255	Scarlet fever	228
Diphtheria	253	Septic sore throat	3
Dog-bite requiring anti-rabic treatment	9	Suppurative conjunctivitis	19
Encephalitis lethargica	1	Syphilis	52
Epidemic cerebro-spinal meningitis	2	Tetanus	1
German measles	7	Trachoma	1
Gonorrhea	86	Tuberculosis, pulmonary	109
Influenza	3	Tuberculosis, other forms	13
Measles	204	Typhoid fever	11
Mumps	101	Whooping-cough	95
Ophthalmia neonatorum	27		

THE NORFOLK DISTRICT MEDICAL SOCIETY

A regular meeting of the society will be held at the Evans Memorial Hospital, East Concord Street, Boston, Tuesday evening, November 27, at 8 p.m. sharp.

The society will be the guest of the Massachusetts Homeopathic Hospital and the various papers will be presented by members of the staff.

"Welcome to the Society," Henry M. Pollock, M.D., Superintendent, Massachusetts Homeopathic Hospital; "Post-Diphtheritic Laryngeal Stenosis," Frederick W. Cruff, M.D., Resident, Haynes Memorial Hospital; "Institutional Prenatal Methods as Applied to Private Practice," E. Pakenham Ruggles, M.D., Obstetrician, Robinson Memorial Hospital; "Non-Perforated Ulcers of the Stomach and Duodenum," J. Emmons Briggs, M.D., Surgeon-in-Chief, Massachusetts Homeopathic Hospital; "Acidosis in Infancy," O. R. Chadwell, M.D., Pediatrician, Massachusetts Homeopathic Hospital; "A Short Program of Vital Function Test for the Diagnosis of Disturbed Endocrine Function," A. W. Rowe, Ph.D., Evans Memorial Hospital for Clinical Research and Preventive Medicine.

From 6.30 to 8 p.m., all who are interested will be welcome to visit the Venereal Clinic at the Out-Patient Department, under the charge of Stephen H. Blodgett, M.D., Demonstrations of salvarsan injections.

Refreshments after the meeting.

W. W. HOWELL, M.D., *President,*
BRADFORD KENT, M.D., *Secretary,*
798 Blue Hill Avenue, Dorchester.

SOCIETY MEETINGS

DISTRICT SOCIETIES

Suffolk District Medical Society:

December 19, 1923:—Meeting of Medical Section at the Boston Medical Library at 8.15 p. m.

January 30, 1924:—In association with the Boston Medical Library and the Middlesex South District Medical Society at the Boston Medical Library at 8.15 p. m.

February 27, 1924:—Meeting of Surgical Section, in association with the Middlesex South District at the Boston Medical Library at 8.15 p. m.

March 26, 1924:—Meeting of the Medical Section, in association with the Boston Association for the Prevention and Relief of Heart Disease, at the Boston Medical Library at 8.15 p. m.

April 30, 1924:—Annual Meeting, to be held at the Boston Medical Library at 8.15 p. m.

Worcester District:—The meetings for the year are as follows:

December 12 in Worcester. Papers by Dr. Fred B. Lund of Boston and Dr. Michael F. Fallon and Dr. Walter Seelye of Worcester.
January 9 at St. Vincent Hospital, Worcester.
February 13 at Memorial Hospital, Worcester.
March 13 at City Hospital, Worcester.
April 10—A public meeting.
May 8—Annual Meeting.

Norfolk South District:—Meetings first Thursday of each month at 11.30 a. m., December, January, February, March, April and May, at United States Hotel, Boston. The February and May meetings are stated meetings.

Essex South District:—The meetings for the year are as follows:

December 12, 1923:—Salem Hospital.
January 23, 1924:—Lynn Hospital.
March 19, 1924:—Gloucester Hospital.
May 7, 1924:—Annual Meeting in conjunction with Lynn Medical Fraternity, Relay House.

Essex North:—Semi-annual meeting at Haverhill, January 2, 1924. Annual meeting at Lawrence General Hospital, May 7, 1924.

Franklin District:—Society meets at Greenfield the second Tuesday of January, March, May, July, September. Annual Meeting in May.

Middlesex South District Medical Society:

December, 1923:—Hospital Day, probably at the Cambridge Hospital.
January 30, 1924:—Combined meeting with Suffolk District at the Boston Medical Library.
February 27, 1924:—Combined meeting with the Surgical Section of Suffolk District at the Boston Medical Library.
March, 1924:—Hospital meeting; place not yet determined.
April, 1924:—Annual meeting.

Hampden District:—The meetings for the year are as follows:

January, 1924, at Springfield. April, 1924, at Springfield. Annual Meeting.

Bristol South District Medical Society:

The Annual Meeting will be held in New Bedford, May 1, 1924.

Hampshire District Medical Society:

Meetings held bi-monthly, the second Wednesday in the month, at Boyden's Restaurant, Northampton.

STATE, INTERSTATE AND NATIONAL SOCIETIES

Schedule of meetings of the New England Dermatological Society:

Wednesday, December 12, 1923, at 3 p. m., in the Surgical Amphitheatre, Boston City Hospital.

Wednesday, February 13, 1924, at 3 p. m., in the Skin Out-Patient Department, Massachusetts General Hospital.

Wednesday, April 9, 1924, at 3 p. m., in the Surgical Amphitheatre, Boston City Hospital.

The New England Otological and Laryngological Society:—Tuesday, November 27, 1923, at the Boston Medical Library, 8 The Fenway, at 8 p. m.